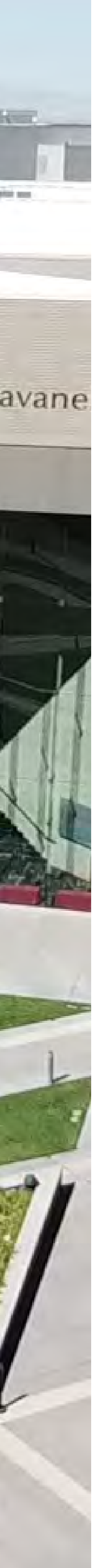
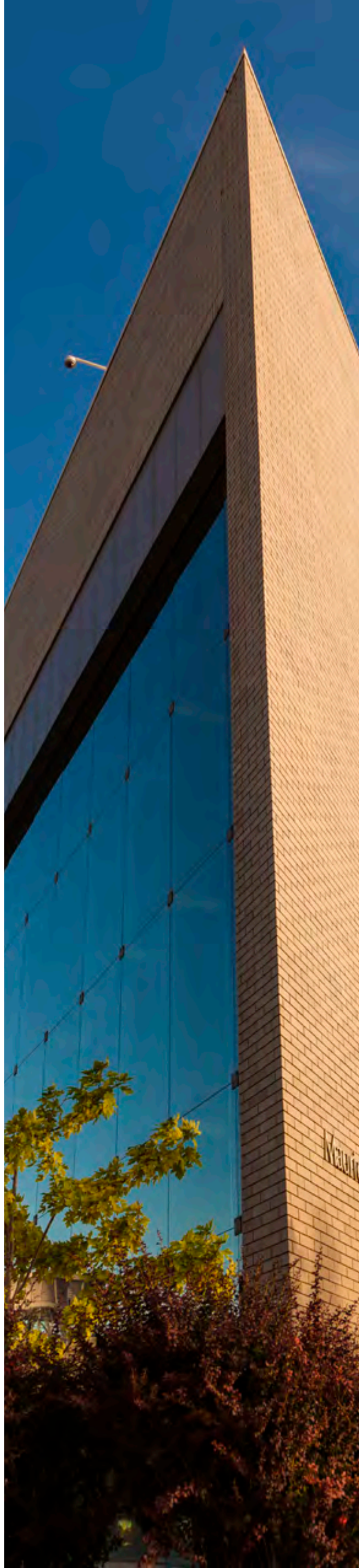




MAURICE ABRAVANEL HALL

MASTER PLANNING DOCUMENT
EXECUTIVE SUMMARY

14 MAY 2024

PREPARED BY: SPARANO+MOONEY ARCHITECTURE

FOR: SALT LAKE COUNTY

ABRAVANEL HALL HISTORY

Maurice Abravanel Hall is an architectural, acoustic, and artistic landmark in downtown Salt Lake City. Created as part of the 1975 Bicentennial Bond approved by voters, Abravanel Hall opened in 1979 to great acclaim. Designed by local firm FFKR with acoustics by acclaimed acoustician Dr. Cyril Harris, Abravanel Hall is the home of the renowned Utah Symphony.

Since its opening, the programming in the Hall has expanded beyond traditional symphony performances. Still the home of the Symphony, it now also functions as a live event space for both acoustic and amplified performances, including spoken-word events, pops concerts, films, and other events.

Over time, venue staff and users have identified significant renovations needed to address modern accessibility requirements, aging infrastructure, upgrades to essential building systems, technology enhancements, and additional space for patrons and presenters. The County has worked closely with the Symphony and other stakeholders on several major projects to improve the venue without compromising the architecture or acoustics.

- 1998 – Two-story addition including patron restrooms, a ticket office, and the First Tier Room, a heavily-used reception space.
- 2008 – An Abravanel Hall Lobby renovation was one of 19 recommended projects in the County's first Cultural Facilities Master Plan.
- 2011 – Installed a new sound system in the hall to enhance and improve amplified symphony and spoken-word performance acoustics.
- 2015 – Renovated outdoor plaza to complement original architecture to address public safety after finding several unrepairable water leaks under the fountain.
- 2016-17 – Lobby renovations to address accessibility and lobby circulation, including installing a new escalator, carpet replacement, and reconfiguring the concessions, merchandise, and customer service counters.

From 2013 to 2016, Salt Lake County worked with the Utah Symphony, HKS Architects, and other stakeholders, including a representative from the original architect FFKR, to create a masterplan for the venue's future over the next 50 years. The plan outlined various projects that could be completed in any order, depending on urgency, priority, and funding availability. However, while it identified several necessary upgrades, it did not fully address essential issues such as improving venue accessibility, addressing key safety and maintenance concerns, and upgrading technology to support the growing variety of live events.

In response to the changing landscape of live events, especially post-COVID, and to address pressing facility infrastructure, accessibility, support space design, system and technology needs, the County enlisted Sparano + Mooney Architecture in 2023 to update the Abravanel Hall masterplan and provide a more complete vision for how the hall can better serve our artists and patrons in the next 50 years. This updated masterplan includes a comprehensive series of recommendations aimed at guiding Abravanel Hall into the future.

PROCESS OVERVIEW

The masterplan team was led by Salt Lake County and included:

- Sparano+Mooney Architecture and their consulting team, including Theatre Projects and Kirkegarrd Acoustics, both internationally-renowned experts in their fields.
- Utah Symphony | Utah Opera – Primary resident of Abravanel Hall and key stakeholder in defining current and future needs of the hall.
- Salt Lake County Arts + Culture – Operator of Abravanel Hall with primary responsibility for venue scheduling, event and technical management, and day-to-day operations and maintenance.
- Salt Lake County Community Services Department – Liaison with County Facilities, Arts + Culture, and Mayor's Office.
- Salt Lake County Facilities Department – Oversight and management of County facilities for code compliance and construction and renovation projects.

This team reviewed existing building systems, technology, and front- and back-of-house spaces; studied previous masterplans and project plans; and conducted an extensive acoustic study. We also conducted comprehensive community outreach sessions with key stakeholders. This vital information we collected along with relevant industry standards and best practices informs the priorities of this 2024 Abravanel Hall Masterplan and the measures of success for future planning and design.

COMMUNITY OUTREACH

We conducted extensive community outreach with Abravanel Hall stakeholders including:

- Utah Symphony staff, musicians, and board
- UMOCA and the Salt Palace with whom the Hall shares space, utilities, a loading dock, and significant visitor overlap
- Regular and potential users of Abravanel Hall, including commercial and nonprofit clients
- Arts & Culture staff
- Abravanel Hall neighbors – businesses, residents, and other organizations
- Key community stakeholders

We held in-person focus groups, interviews, venue and acoustical tours, and virtual listening sessions designed to gather vital insights from these key stakeholders. Comprehensive online surveys were conducted with those who were unable to attend in-person sessions. At each meeting we conducted Strength, Weakness, Threats, and Opportunity (SWOT) assessments to build a baseline understanding and ensuing discussions focused on both the presenter experience and the patron experience inside the Hall, including the questions of what works well, what isn't working, and what is missing?

All of the findings, including meeting notes, SWOT analyses, and survey results, are included in the appendices of the 2024 Master Plan (2024 Plan).

KEY FINDINGS

Several key themes emerged through the community outreach process and are summarized below. These themes guide the masterplan direction and recommendations.

1 Acoustics for unamplified sound are a defining feature, key enhancements are needed to address:

- Inconsistent sound across the stage for musicians
- Inconsistent sound for patrons in the hall, especially on the first and second tiers
- Amplified sound is challenging, adding enhanced deployable acoustic curtains would significantly improve sound

2 A key strength of Abravanel Hall is its location in the downtown core. The location can be leveraged to welcome new audiences, artists, producers and presenters, although significant challenges exist for connectivity to adjacent amenities, facilities and services, such as the Salt Palace and UMOCA.

3 Abravanel Hall is often seen as exclusive or “not a place for me” by both patrons and potential users. It is important to use the architecture and design to engage the community and demonstrate that the venue is an inclusive and vital cultural asset in our community.

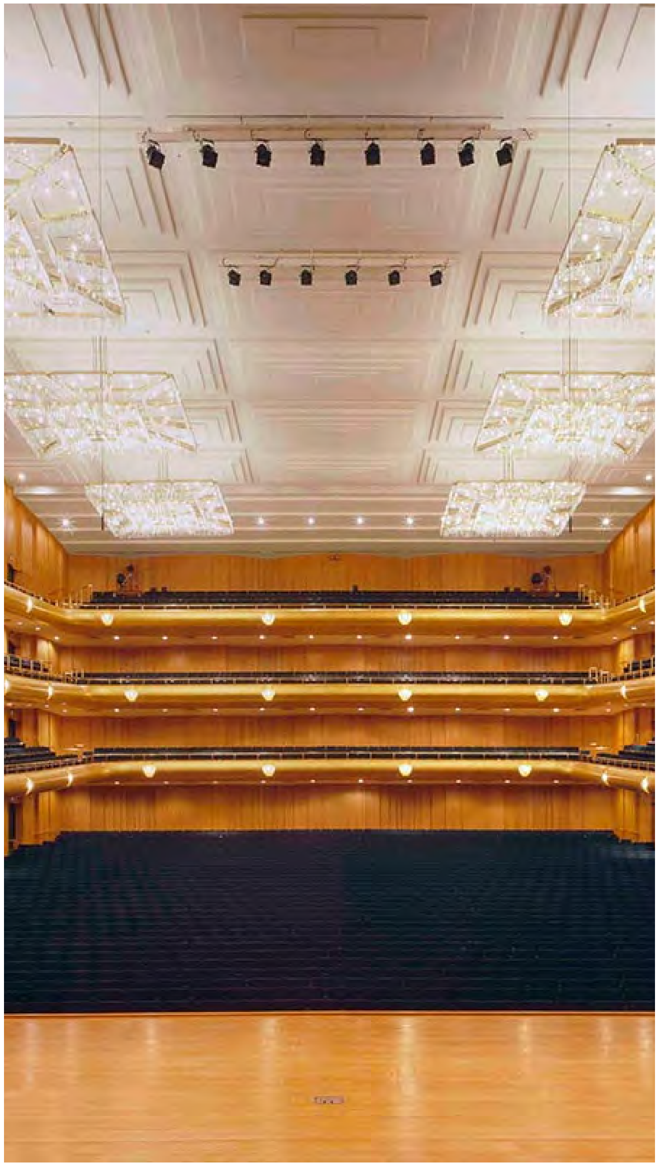
4 As currently designed, the building presents significant design challenges and certain building systems are in need of replacement and/or upgrades to meet accessibility, safety, and the needs or current and future performances and patrons.

- Accessibility is a particular concern. It is important that the venue is brought up to current ADA standards to meet accessibility codes and best practices for all community members.
- Many key facility systems are approaching or have surpassed their useful life or no longer meet current safety standards. Systems need replacement or upgrades to avoid significant and costly operational disruptions.
- The venue’s current technology does not support modern symphony, presenter, or patron needs and expectations, and limits the types of events that could be presented.

5 The backstage and lobby spaces are significantly undersized for the types of support needed for modern presenters and performances and do not provide adequate room for artists, staff, and other event needs. The lobby size limits patron circulation and space for patron amenities (concessions, merchandise, pre-show lobby activities, etc.), and the *Olympic Tower* sculpture by Dale Chihuly occupies a large footprint in the space. Renovation options should be considered to allow it to complement the lobby without hindering patron circulation.

6 The existing venue wayfinding and patron circulation is outdated and needs to be updated to meet modern standards for improved circulation and to allow clear messaging for the patron experience, supporting brand messages, and promoting upcoming shows/events, and should be designed to support the County’s diversifying population.

7 The plaza is underutilized given its prominence as a downtown public space. A physical reconfiguration of the outdoor plaza could help engage (and connect the building with) the community, people attending events, and passers-by, as well as make active and passive activations both effective and feasible.



PROJECT SCOPE OVERVIEW

This masterplan builds upon previous planning efforts, consolidates proposed projects into five functional areas, and prioritizes accessibility and safety, building systems and maintenance, and technology and infrastructure to address the new realities of live entertainment in the post-COVID era.

BUILDING SYSTEMS

- Install fire suppression system to meet code requirements
- Update HVAC systems and disconnect portions from Salt Palace based on detailed HVAC study
- Modernize access controls to address significant safety and security issues
- Upgrade lighting throughout building to energy-efficient LED fixtures

PERFORMANCE HALL

- Update accessibility to current ADA standards for people with disabilities and improve seating
- Add forestage lifts and seat wagons to significantly improve speed and reduce costs of turnovers
- Upgrade production infrastructure and capabilities including screen projection, amplified sound, and video capture
- Integrate retractable curtains in the auditorium to improve acoustics for amplified performances and improve speed of deployment
- Lightly modify walls and proscenium zone to improve orchestral hearing conditions and patron listening experience

FRONT OF HOUSE

- Update and increase restroom facilities to better serve patrons
- Add new elevators for improved accessibility to the tier levels
- Expand and reconfigure lobby to improve pedestrian flow, accessibility, and wayfinding
- Reorganize service counter to allow for alcohol service and to solve patron flow issues
- Add and expand ancillary event spaces for better audience engagement and rental opportunities
- Improve overall visibility and community connection

BACK OF HOUSE

- Reconfigure loading dock and fix non-compliant floor slopes
- Update and expand back-of-house support spaces to better accommodate musicians, guest artists, chorus, etc.
- Update and expand A+C venue staff and Resident office spaces for modern staffing needs

SITE + PLAZA

- Improve production and programming capabilities of the plaza
- Improve upon current east plaza landscaping and provide places for informal activities
- Introduce connectivity to the Salt Palace from Abravanel Hall, including the addition of a shared event space on the roof of UMOCA
- Improve overall visibility and community connection of campus

PROJECT PHASING

The 2024 Plan recommends completing the necessary work at Abravanel Hall simultaneously, to minimize disruption to the Symphony and to maximize construction efficiency and cost effectiveness. Projects are categorized in specific project areas, but many projects impact two or more categories. In contrast, the 2016 Plan divided renovations into smaller, non-sequential projects. Although this approach tackled urgent problems, it didn't fully address the Hall's fundamental issues.

If a phased approach is necessary, a proposed sequence is outlined below:

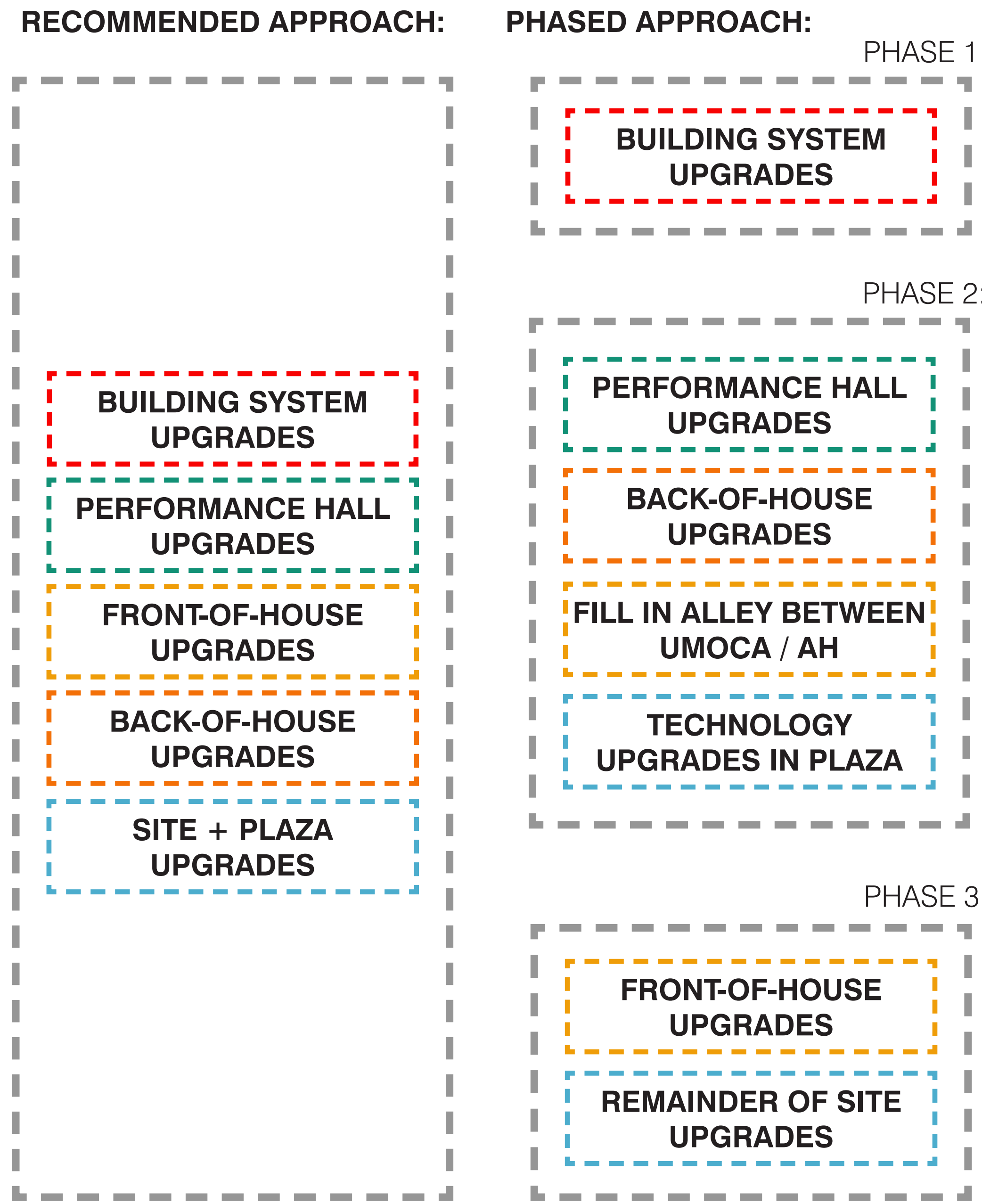
1. For every major phase of construction, there will be separate mobilization costs that are not included in the estimates contained within this document.

2. If the projects are broken into phases, this structuring may increase the amount of time Utah Symphony will be displaced from the Hall during construction and the venue cannot be rented out at all to other frequent users.

3. The most likely staging area for construction will be the plaza, which would require it to be rebuilt after each separate construction effort. Alternatively, "just-in-time" material management practices would need to be implemented, or the County would need to secure an off-site staging area for the duration of construction. Each of these scenarios has its own cost implications beyond the estimates within this document.

4. Some of the work required for one construction phase may overlap with work required in a different phase, and splitting the work required will cause inefficiencies. For example, fixing the front-of-house ADA access in the auditorium also requires new accessible ramps to be constructed in the back-of-house areas of the building.

5. The public perception of money spent versus incremental public improvements will need to be coordinated across all phases.



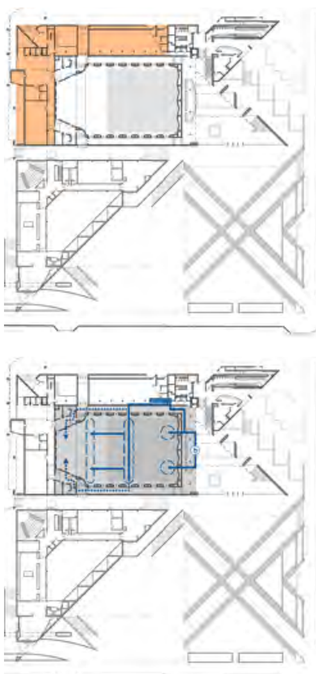
COST PROJECTIONS

To maintain flexibility for future work, cost estimates are divided into multiple items, with detailed estimates provided in the narrative. The main cost categories are: (1) Performance and Performance Spaces; (2) Front-of-House Upgrades and Additions; (3) Event Space Addition; (4) Alley Infill; and (5) Plaza Upgrades.

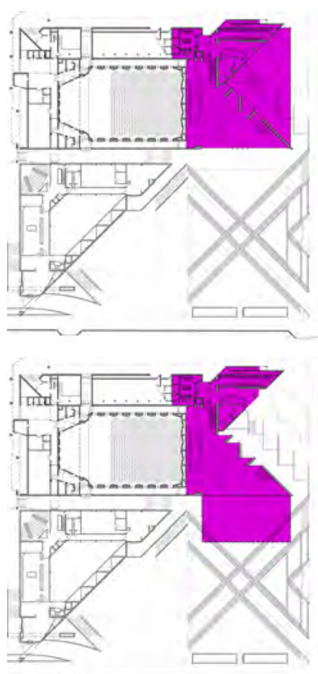
These estimates do not include expenses for a phased construction approach or any seismic upgrades. For budgetary purposes, a 10% increase should be expected for seismic costs. For accurate seismic estimates, Tier 2 and 3 seismic analyses are necessary.

GROUP 1	PERFORMER + PERFORMANCE SPACE	Back-of-house demo and upgrades	$52,505,000	$744/gsf
		Performance hall	$58,390,000	$1,753/gsf
GROUP 2	FRONT-OF-HOUSE + ADDITION	Option A: expand lobby into north plaza	$66,075,000	$1,427/gsf
		Option B: expand lobby into east plaza	$44,975,000	$2,405/gsf
GROUP 3	EVENT SPACE ADDITION	Option A: event space as third tier room	$6,150,000	$1,130/gsf
		Option B: event space on UMOCA rooftop	$18,395,000	$1,374/gsf
GROUP 4	ALLEY INFILL	Fill in alley between UMOCA and Abravanel Hall	$25,905,000	$1,080/gsf
GROUP 5	PLAZA UPGRADES	Technology upgrades only	$2,050,000	--
		Full plaza rework (includes technology)	$16,310,000	--

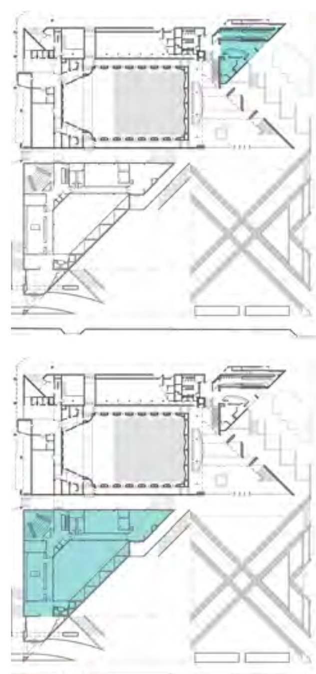
GROUP 1:



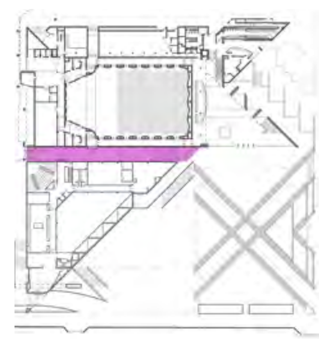
GROUP 2:



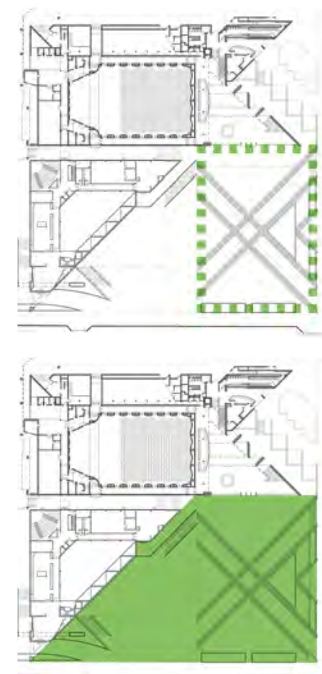
GROUP 3:



GROUP 4:



GROUP 5:



SUSTAINABILITY

In accordance with Salt Lake County Design Guidelines, the facility should be geared to achieve or contribute towards meeting the requirements of a minimum Gold certification under the USGBC LEED BD+C Rating System.

All building systems will be designed for the best possible efficiency and performance, and architectural elements will be carefully considered to comply with LEED requirements.

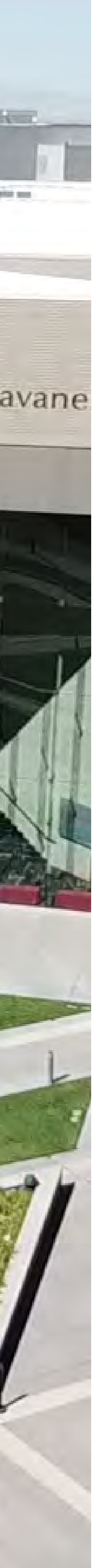
It is anticipated that the project will pursue, at minimum, the following LEED credits to achieve the required certification:

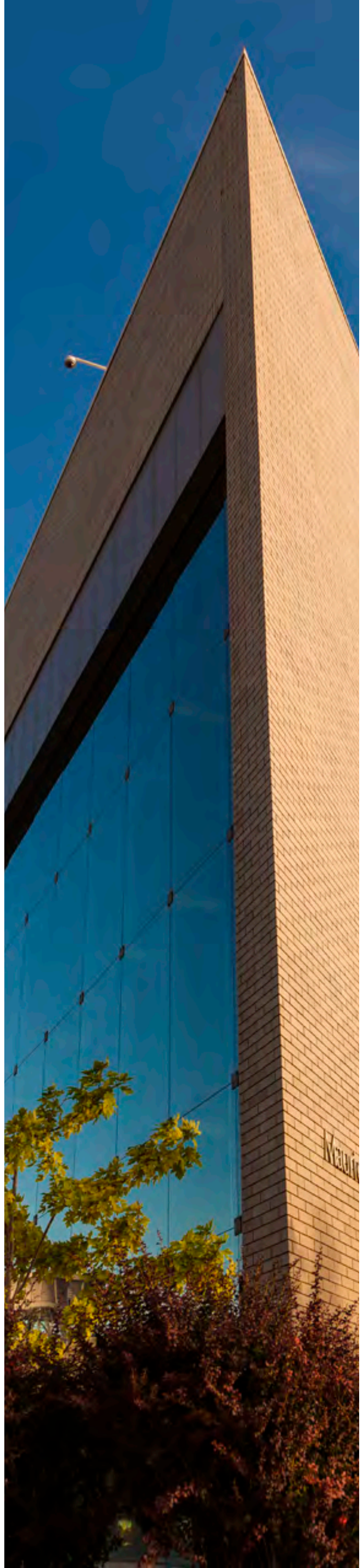
LEED v4.1 BD+C
Project Checklist

Project Name:
Date:

Y	?	N			
	1		Credit	Integrative Process	1
0	**12**	**0**		**Location and Transportation**	**16**
			Credit	LEED for Neighborhood Development Location	16
	1		Credit	Sensitive Land Protection	1
			Credit	High Priority Site and Equitable Development	2
	4		Credit	Surrounding Density and Diverse Uses	5
	5		Credit	Access to Quality Transit	5
	1		Credit	Bicycle Facilities	1
	1		Credit	Reduced Parking Footprint	1
			Credit	Electric Vehicles	1
0	**7**	**0**		**Sustainable Sites**	**10**
Y			Prereq	Construction Activity Pollution Prevention	Required
	1		Credit	Site Assessment	1
	1		Credit	Protect or Restore Habitat	2
	1		Credit	Open Space	1
	1		Credit	Rainwater Management	3
	2		Credit	Heat Island Reduction	2
	1		Credit	Light Pollution Reduction	1
0	**9**	**0**		**Water Efficiency**	**11**
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
	2		Credit	Outdoor Water Use Reduction	2
	6		Credit	Indoor Water Use Reduction	6
			Credit	Optimize Process Water Use	2
	1		Credit	Water Metering	1
0	**26**	**0**		**Energy and Atmosphere**	**33**
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
	6		Credit	Enhanced Commissioning	6
	18		Credit	Optimize Energy Performance	18
	1		Credit	Advanced Energy Metering	1
			Credit	Grid Harmonization	2
			Credit	Renewable Energy	5
	1		Credit	Enhanced Refrigerant Management	1
0	**11**	**0**		**Materials and Resources**	**13**
Y			Prereq	Storage and Collection of Recyclables	Required
	3		Credit	Building Life-Cycle Impact Reduction	5
	2		Credit	Environmental Product Declarations	2
	2		Credit	Sourcing of Raw Materials	2
	2		Credit	Material Ingredients	2
	2		Credit	Construction and Demolition Waste Management	2
0	**11**	**0**		**Indoor Environmental Quality**	**16**
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
	1		Credit	Enhanced Indoor Air Quality Strategies	2
	3		Credit	Low-Emitting Materials	3
	1		Credit	Construction Indoor Air Quality Management Plan	1
	1		Credit	Indoor Air Quality Assessment	2
	1		Credit	Thermal Comfort	1
	2		Credit	Interior Lighting	2
			Credit	Daylight	3
	1		Credit	Quality Views	1
	1		Credit	Acoustic Performance	1
0	**1**	**0**		**Innovation**	**6**
			Credit	Innovation	5
	1		Credit	LEED Accredited Professional	1
0	**1**	**0**		**Regional Priority**	**4**
	1		Credit	Regional Priority: Access to Quality Transit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
0	**79**	**0**		**TOTALS** Possible Points:	**110**

Certified: 40 to 49 points,
Silver: 50 to 59 points,
Gold: 60 to 79 points,
Platinum: 80 to 110






MAURICE ABRAVANEL HALL

MASTER PLANNING DOCUMENT

14 MAY 2024

PREPARED BY: SPARANO+MOONEY ARCHITECTURE

FOR: SALT LAKE COUNTY

THIS DOCUMENT IS THE RESULT OF THE DEDICATED PARTICIPATION OF MANY GROUPS AND INDIVIDUALS. WE'D LIKE TO THANK THE EXTENSIVE LIST OF FOCUS GROUP PARTICIPANTS FOR THEIR VALUED INPUT. IN PARTICULAR, WE WOULD LIKE TO THANK THE FOLLOWING SPECIFIC INDIVIDUALS FOR THEIR CONTRIBUTIONS TO THE COMPLETION OF THIS MASTER PLAN REPORT:

OWNERSHIP GROUP

SALT LAKE COUNTY

Robin Chalhoub, Community Services Department Director
Joey McNamee, Community Services Department Assoc. Director
Ryan Henrie, Facilities Management Assoc. Division Director
Matthew Castillo, Arts + Culture Division Director
Melinda Cavallaro, A+C Assoc. Division Director, Event Services
Jeff Gwilliam, A+C Assoc. Division Director, Theater Operations
Cami Munk, A+C Communications Manager

UTAH SYMPHONY | UTAH OPERA

Steven Brosvik, President + CEO

DESIGN TEAM

SPARANO + MOONEY ARCHITECTURE

John Sparano, FAIA, NCARB
Anne Mooney, FAIA, NCARB, LEED AP
Nate King, AIA, NCARB
Daniel Gasser, AIA

THEATRE PROJECTS

Scott Crossfield, FASTC, Design Director
Jim Niesel, ASTC ETCPR-T, Principal
Gena Buhler, Principal
Tom Bukovac, P.E., Associate
Ashley Keen, CVP, Senior Consultant

KIRKEGAARD

Joseph Myers, Principal, Acoustics

VENUE CONSULTING

Nakoto Rentz, CGC

VBFA

Spencer Howell, P.E., LEED AP

SPECTRUM ENGINEERS

Matt Haverkamp, P.E.

TBSE STRUCTURAL ENGINEERS

Luke Balling, P.E., S.E.

MICHAEL BOUCHER LANDSCAPE ARCHITECTURE

Michael Boucher, FASLA
Sam Gilbert

EXECUTIVE SUMMARY

ABRAVANEL HALL HISTORY

Maurice Abravanel Hall is an architectural, acoustic, and artistic landmark in downtown Salt Lake City. Created as part of the 1975 Bicentennial Bond approved by voters, Abravanel Hall opened in 1979 to great acclaim. Designed by local firm FFKR with acoustics by acclaimed acoustician Dr. Cyril Harris, Abravanel Hall is the home of the renowned Utah Symphony.

Since its opening, the programming in the Hall has expanded beyond traditional symphony performances. Still the home of the Symphony, it now also functions as a live event space for both acoustic and amplified performances, including spoken-word events, pops concerts, films, and other events.

Over time, venue staff and users have identified significant renovations needed to address modern accessibility requirements, aging infrastructure, upgrades to essential building systems, technology enhancements, and additional space for patrons and presenters. The County has worked closely with the Symphony and other stakeholders on several major projects to improve the venue without compromising the architecture or acoustics.

- 1998 – Two-story addition including patron restrooms, a ticket office, and the First Tier Room, a heavily-used reception space.
- 2008 – An Abravanel Hall Lobby renovation was one of 19 recommended projects in the County's first Cultural Facilities Master Plan.
- 2011 – Installed a new sound system in the hall to enhance and improve amplified symphony and spoken-word performance acoustics.
- 2015 – Renovated outdoor plaza to complement original architecture to address public safety after finding several unrepairable water leaks under the fountain.
- 2016-17 – Lobby renovations to address accessibility and lobby circulation, including installing a new escalator, carpet replacement, and reconfiguring the concessions, merchandise, and customer service counters.

From 2013 to 2016, Salt Lake County worked with the Utah Symphony, HKS Architects, and other stakeholders, including a representative from the original architect FFKR, to create a masterplan for the venue's future over the next 50 years. The plan outlined various projects that could be completed in any order, depending on urgency, priority, and funding availability. However, while it identified several necessary upgrades, it did not fully address essential issues such as improving venue accessibility, addressing key safety and maintenance concerns, and upgrading technology to support the growing variety of live events.

In response to the changing landscape of live events, especially post-COVID, and to address pressing facility infrastructure, accessibility, support space design, system and technology needs, the County enlisted Sparano + Mooney Architecture in 2023 to update the Abravanel Hall masterplan and provide a more complete vision for how the hall can better serve our artists and patrons in the next 50 years. This updated masterplan includes a comprehensive series of recommendations aimed at guiding Abravanel Hall into the future.

SPARANO+MOONEY ARCHITECTURE · SALT LAKE COUNTY

PROCESS OVERVIEW

The masterplan team was led by Salt Lake County and included:

- Sparano+Mooney Architecture and their consulting team, including Theatre Projects and Kirkegarrd Acoustics, both internationally-renowned experts in their fields.
- Utah Symphony | Utah Opera – Primary resident of Abravanel Hall and key stakeholder in defining current and future needs of the hall.
- Salt Lake County Arts + Culture – Operator of Abravanel Hall with primary responsibility for venue scheduling, event and technical management, and day-to-day operations and maintenance.
- Salt Lake County Community Services Department – Liaison with County Facilities, Arts + Culture, and Mayor's Office.
- Salt Lake County Facilities Department – Oversight and management of County facilities for code compliance and construction and renovation projects.

This team reviewed existing building systems, technology, and front- and back-of-house spaces; studied previous masterplans and project plans; and conducted an extensive acoustic study. We also conducted comprehensive community outreach sessions with key stakeholders. This vital information we collected along with relevant industry standards and best practices informs the priorities of this 2024 Abravanel Hall Masterplan and the measures of success for future planning and design.

COMMUNITY OUTREACH

We conducted extensive community outreach with Abravanel Hall stakeholders including:

- Utah Symphony staff, musicians, and board
- UMOCA and the Salt Palace with whom the Hall shares space, utilities, a loading dock, and significant visitor overlap
- Regular and potential users of Abravanel Hall, including commercial and nonprofit clients
- Arts & Culture staff
- Abravanel Hall neighbors – businesses, residents, and other organizations
- Key community stakeholders

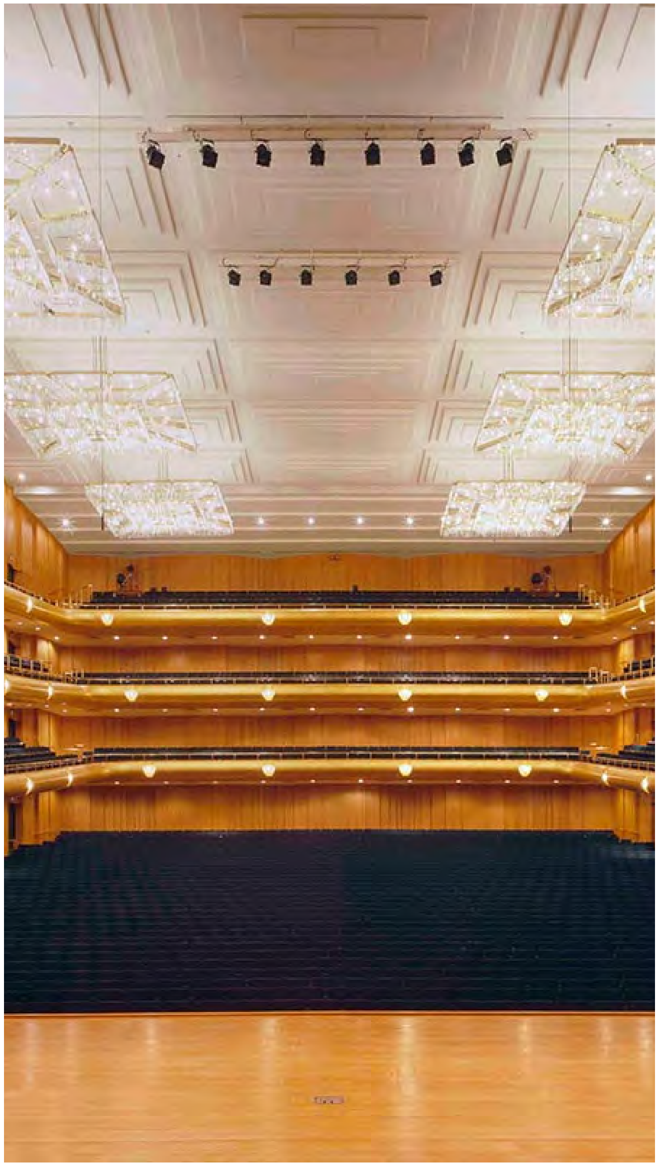
We held in-person focus groups, interviews, venue and acoustical tours, and virtual listening sessions designed to gather vital insights from these key stakeholders. Comprehensive online surveys were conducted with those who were unable to attend in-person sessions. At each meeting we conducted Strength, Weakness, Threats, and Opportunity (SWOT) assessments to build a baseline understanding and ensuing discussions focused on both the presenter experience and the patron experience inside the Hall, including the questions of what works well, what isn't working, and what is missing?

All of the findings, including meeting notes, SWOT analyses, and survey results, are included in the appendices of the 2024 Master Plan (2024 Plan).

KEY FINDINGS

Several key themes emerged through the community outreach process and are summarized below. These themes guide the masterplan direction and recommendations.

1 Acoustics for unamplified sound are a defining feature, key enhancements are needed to address:
- Inconsistent sound across the stage for musicians
- Inconsistent sound for patrons in the hall, especially on the first and second tiers
- Amplified sound is challenging, adding enhanced deployable acoustic curtains would significantly improve sound



2 A key strength of Abravanel Hall is its location in the downtown core. The location can be leveraged to welcome new audiences, artists, producers and presenters, although significant challenges exist for connectivity to adjacent amenities, facilities and services, such as the Salt Palace and UMOCA.

3 Abravanel Hall is often seen as exclusive or "not a place for me" by both patrons and potential users. It is important to use the architecture and design to engage the community and demonstrate that the venue is an inclusive and vital cultural asset in our community.

4 As currently designed, the building presents significant design challenges and certain building systems are in need of replacement and/or upgrades to meet accessibility, safety, and the needs or current and future performances and patrons.
- Accessibility is a particular concern. It is important that the venue is brought up to current ADA standards to meet accessibility codes and best practices for all community members.
- Many key facility systems are approaching or have surpassed their useful life or no longer meet current safety standards. Systems need replacement or upgrades to avoid significant and costly operational disruptions.
- The venue's current technology does not support modern symphony, presenter, or patron needs and expectations, and limits the types of events that could be presented.

5 The backstage and lobby spaces are significantly undersized for the types of support needed for modern presenters and performances and do not provide adequate room for artists, staff, and other event needs. The lobby size limits patron circulation and space for patron amenities (concessions, merchandise, pre-show lobby activities, etc.), and the *Olympic Tower* sculpture by Dale Chihuly occupies a large footprint in the space. Renovation options should be considered to allow it to complement the lobby without hindering patron circulation.

6 The existing venue wayfinding and patron circulation is outdated and needs to be updated to meet modern standards for improved circulation and to allow clear messaging for the patron experience, supporting brand messages, and promoting upcoming shows/events, and should be designed to support the County's diversifying population.

7 The plaza is underutilized given its prominence as a downtown public space. A physical reconfiguration of the outdoor plaza could help engage (and connect the building with) the community, people attending events, and passers-by, as well as make active and passive activations both effective and feasible.

PROJECT SCOPE OVERVIEW

This masterplan builds upon previous planning efforts, consolidates proposed projects into five functional areas, and prioritizes accessibility and safety, building systems and maintenance, and technology and infrastructure to address the new realities of live entertainment in the post-COVID era.

BUILDING SYSTEMS

- Install fire suppression system to meet code requirements
- Update HVAC systems and disconnect portions from Salt Palace based on detailed HVAC study
- Modernize access controls to address significant safety and security issues
- Upgrade lighting throughout building to energy-efficient LED fixtures

PERFORMANCE HALL

- Update accessibility to current ADA standards for people with disabilities and improve seating
- Add forestage lifts and seat wagons to significantly improve speed and reduce costs of turnovers
- Upgrade production infrastructure and capabilities including screen projection, amplified sound, and video capture
- Integrate retractable curtains in the auditorium to improve acoustics for amplified performances and improve speed of deployment
- Lightly modify walls and proscenium zone to improve orchestral hearing conditions and patron listening experience

FRONT OF HOUSE

- Update and increase restroom facilities to better serve patrons
- Add new elevators for improved accessibility to the tier levels
- Expand and reconfigure lobby to improve pedestrian flow, accessibility, and wayfinding
- Reorganize service counter to allow for alcohol service and to solve patron flow issues
- Add and expand ancillary event spaces for better audience engagement and rental opportunities
- Improve overall visibility and community connection

BACK OF HOUSE

- Reconfigure loading dock and fix non-compliant floor slopes
- Update and expand back-of-house support spaces to better accommodate musicians, guest artists, chorus, etc.
- Update and expand A+C venue staff and Resident office spaces for modern staffing needs

SITE + PLAZA

- Improve production and programming capabilities of the plaza
- Improve upon current east plaza landscaping and provide places for informal activities
- Introduce connectivity to the Salt Palace from Abravanel Hall, including the addition of a shared event space on the roof of UMOCA
- Improve overall visibility and community connection of campus

PROJECT PHASING

The 2024 Plan recommends completing the necessary work at Abravanel Hall simultaneously, to minimize disruption to the Symphony and to maximize construction efficiency and cost effectiveness. Projects are categorized in specific project areas, but many projects impact two or more categories. In contrast, the 2016 Plan divided renovations into smaller, non-sequential projects. Although this approach tackled urgent problems, it didn't fully address the Hall's fundamental issues.

If a phased approach is necessary, a proposed sequence is outlined below:

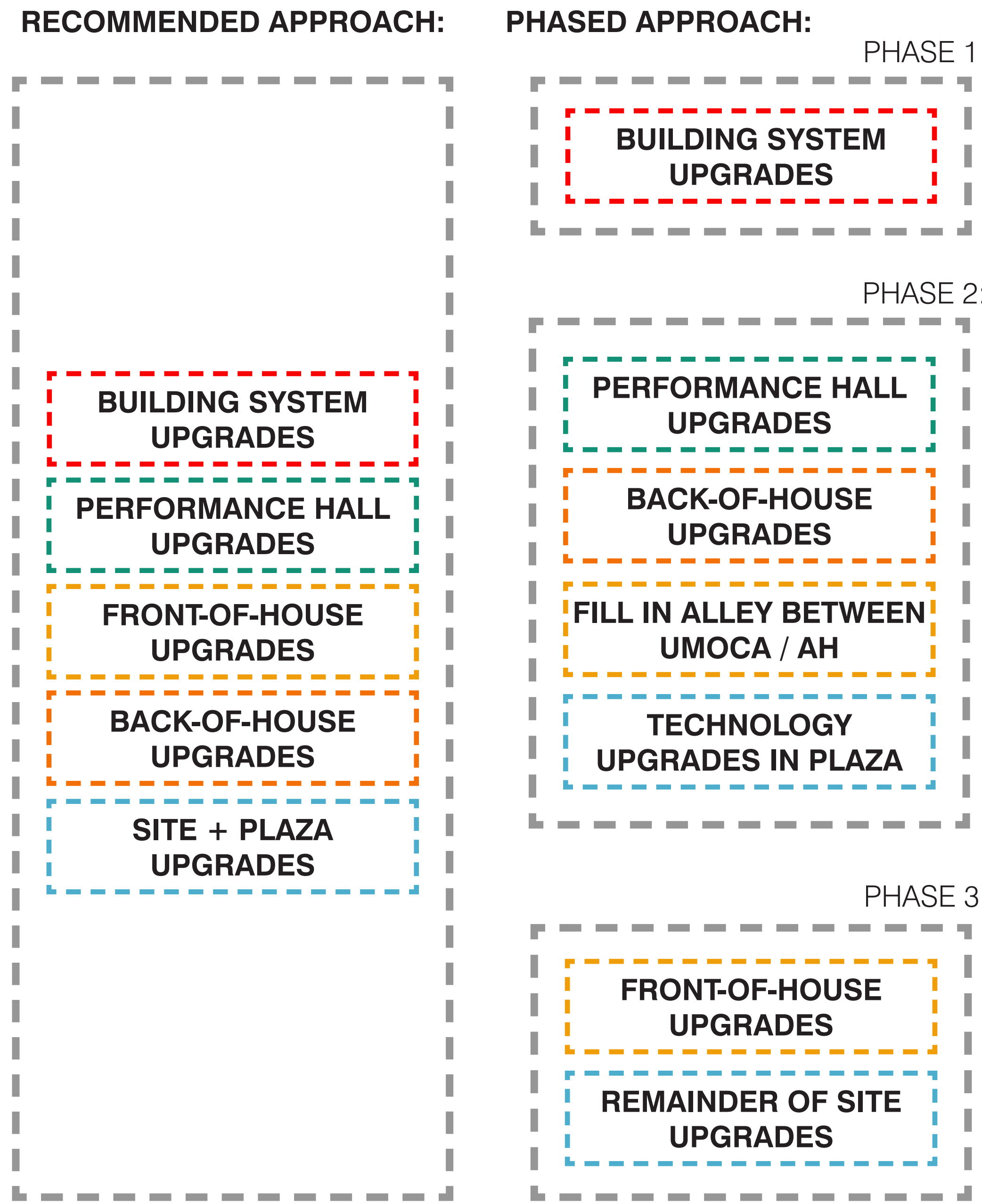
1. For every major phase of construction, there will be separate mobilization costs that are not included in the estimates contained within this document.

2. If the projects are broken into phases, this structuring may increase the amount of time Utah Symphony will be displaced from the Hall during construction and the venue cannot be rented out at all to other frequent users.

3. The most likely staging area for construction will be the plaza, which would require it to be rebuilt after each separate construction effort. Alternatively, "just-in-time" material management practices would need to be implemented, or the County would need to secure an off-site staging area for the duration of construction. Each of these scenarios has its own cost implications beyond the estimates within this document.

4. Some of the work required for one construction phase may overlap with work required in a different phase, and splitting the work required will cause inefficiencies. For example, fixing the front-of-house ADA access in the auditorium also requires new accessible ramps to be constructed in the back-of-house areas of the building.

5. The public perception of money spent versus incremental public improvements will need to be coordinated across all phases.



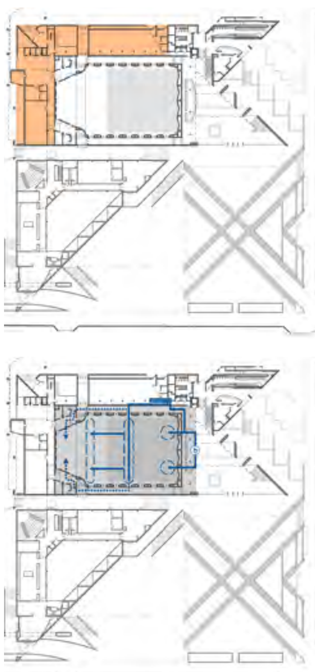
COST PROJECTIONS

To maintain flexibility for future work, cost estimates are divided into multiple items, with detailed estimates provided in the narrative. The main cost categories are: (1) Performance and Performance Spaces; (2) Front-of-House Upgrades and Additions; (3) Event Space Addition; (4) Alley Infill; and (5) Plaza Upgrades.

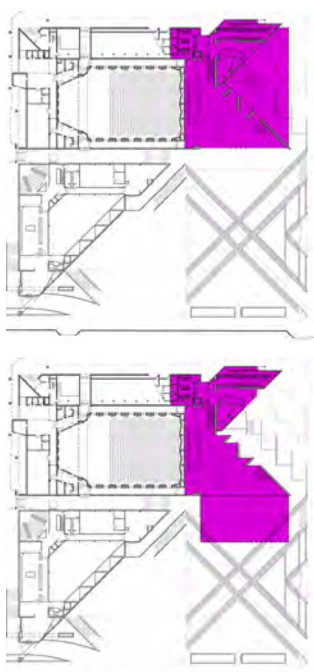
These estimates do not include expenses for a phased construction approach or any seismic upgrades. For budgetary purposes, a 10% increase should be expected for seismic costs. For accurate seismic estimates, Tier 2 and 3 seismic analyses are necessary.

GROUP 1	PERFORMER + PERFORMANCE SPACE	Back-of-house demo and upgrades	$52,505,000	$744/gsf
		Performance hall	$58,390,000	$1,753/gsf
GROUP 2	FRONT-OF-HOUSE + ADDITION	Option A: expand lobby into north plaza	$66,075,000	$1,427/gsf
		Option B: expand lobby into east plaza	$44,975,000	$2,405/gsf
GROUP 3	EVENT SPACE ADDITION	Option A: event space as third tier room	$6,150,000	$1,130/gsf
		Option B: event space on UMOCA rooftop	$18,395,000	$1,374/gsf
GROUP 4	ALLEY INFILL	Fill in alley between UMOCA and Abravanel Hall	$25,905,000	$1,080/gsf
GROUP 5	PLAZA UPGRADES	Technology upgrades only	$2,050,000	--
		Full plaza rework (includes technology)	$16,310,000	--

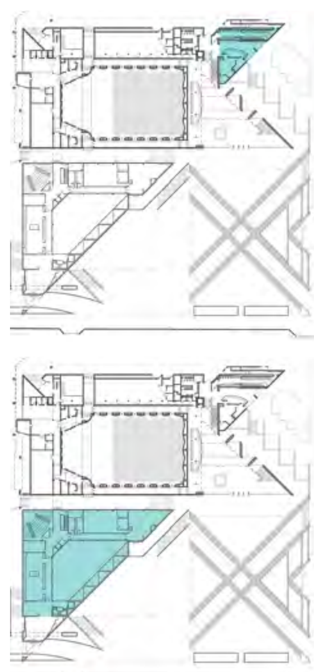
GROUP 1:



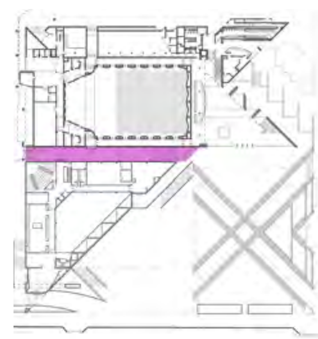
GROUP 2:



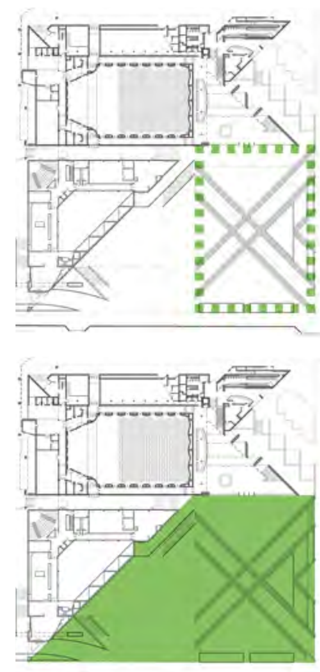
GROUP 3:



GROUP 4:



GROUP 5:



SUSTAINABILITY

In accordance with Salt Lake County Design Guidelines, the facility should be geared to achieve or contribute towards meeting the requirements of a minimum Gold certification under the USGBC LEED BD+C Rating System.

All building systems will be designed for the best possible efficiency and performance, and architectural elements will be carefully considered to comply with LEED requirements.

It is anticipated that the project will pursue, at minimum, the following LEED credits to achieve the required certification:

LEED v4.1 BD+C
Project Checklist

Project Name:
Date:

Y	?	N			
	1		Credit	Integrative Process	1
0	**12**	**0**		**Location and Transportation**	**16**
			Credit	LEED for Neighborhood Development Location	16
	1		Credit	Sensitive Land Protection	1
			Credit	High Priority Site and Equitable Development	2
	4		Credit	Surrounding Density and Diverse Uses	5
	5		Credit	Access to Quality Transit	5
	1		Credit	Bicycle Facilities	1
	1		Credit	Reduced Parking Footprint	1
			Credit	Electric Vehicles	1
0	**7**	**0**		**Sustainable Sites**	**10**
Y			Prereq	Construction Activity Pollution Prevention	Required
	1		Credit	Site Assessment	1
	1		Credit	Protect or Restore Habitat	2
	1		Credit	Open Space	1
	1		Credit	Rainwater Management	3
	2		Credit	Heat Island Reduction	2
	1		Credit	Light Pollution Reduction	1
0	**9**	**0**		**Water Efficiency**	**11**
Y			Prereq	Outdoor Water Use Reduction	Required
Y			Prereq	Indoor Water Use Reduction	Required
Y			Prereq	Building-Level Water Metering	Required
	2		Credit	Outdoor Water Use Reduction	2
	6		Credit	Indoor Water Use Reduction	6
			Credit	Optimize Process Water Use	2
	1		Credit	Water Metering	1
0	**26**	**0**		**Energy and Atmosphere**	**33**
Y			Prereq	Fundamental Commissioning and Verification	Required
Y			Prereq	Minimum Energy Performance	Required
Y			Prereq	Building-Level Energy Metering	Required
Y			Prereq	Fundamental Refrigerant Management	Required
	6		Credit	Enhanced Commissioning	6
	18		Credit	Optimize Energy Performance	18
	1		Credit	Advanced Energy Metering	1
			Credit	Grid Harmonization	2
			Credit	Renewable Energy	5
	1		Credit	Enhanced Refrigerant Management	1

0	**11**	**0**		**Materials and Resources**	**13**
Y			Prereq	Storage and Collection of Recyclables	Required
	3		Credit	Building Life-Cycle Impact Reduction	5
	2		Credit	Environmental Product Declarations	2
	2		Credit	Sourcing of Raw Materials	2
	2		Credit	Material Ingredients	2
	2		Credit	Construction and Demolition Waste Management	2
0	**11**	**0**		**Indoor Environmental Quality**	**16**
Y			Prereq	Minimum Indoor Air Quality Performance	Required
Y			Prereq	Environmental Tobacco Smoke Control	Required
	1		Credit	Enhanced Indoor Air Quality Strategies	2
	3		Credit	Low-Emitting Materials	3
	1		Credit	Construction Indoor Air Quality Management Plan	1
	1		Credit	Indoor Air Quality Assessment	2
	1		Credit	Thermal Comfort	1
	2		Credit	Interior Lighting	2
			Credit	Daylight	3
	1		Credit	Quality Views	1
	1		Credit	Acoustic Performance	1
0	**1**	**0**		**Innovation**	**6**
			Credit	Innovation	5
	1		Credit	LEED Accredited Professional	1
0	**1**	**0**		**Regional Priority**	**4**
	1		Credit	Regional Priority: Access to Quality Transit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
			Credit	Regional Priority: Specific Credit	1
0	**79**	**0**		**TOTALS** Possible Points:	**110**

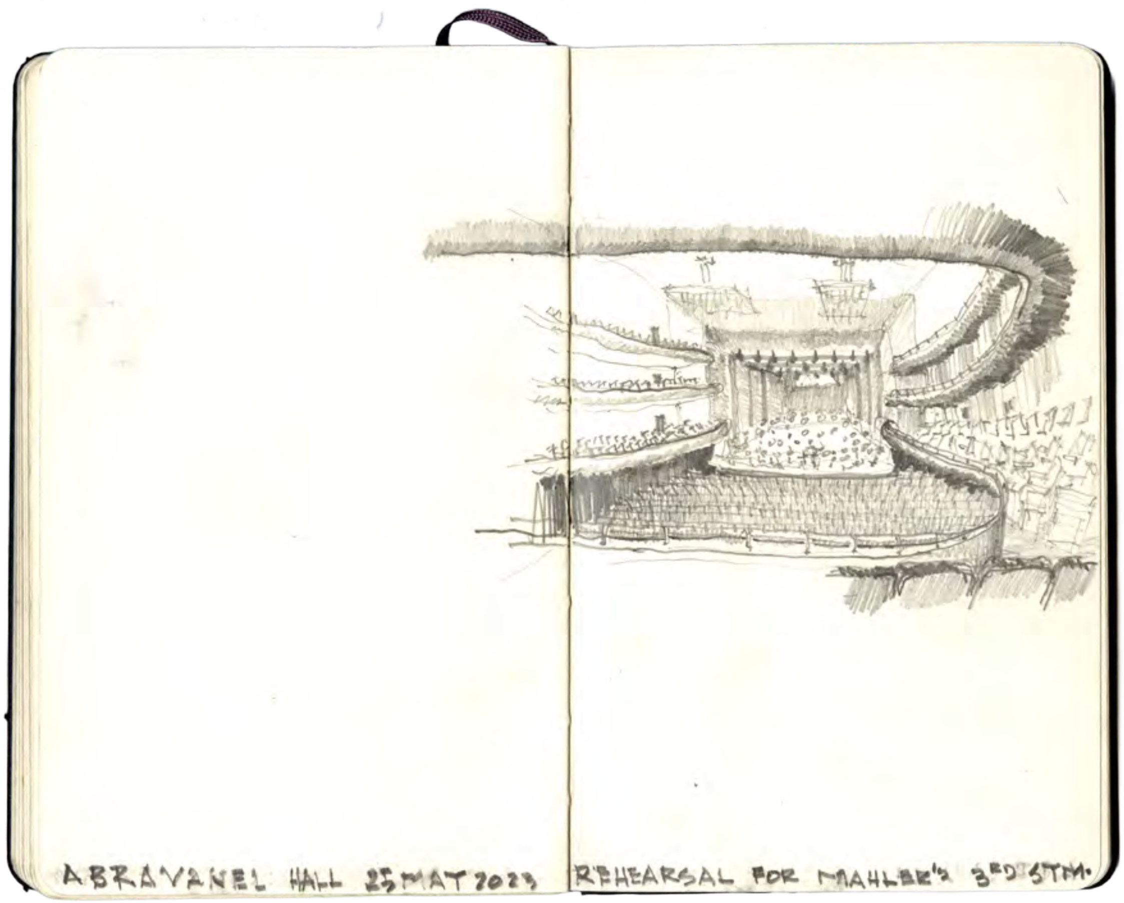
Certified: 40 to 49 points,
Silver: 50 to 59 points,
Gold: 60 to 79 points,
Platinum: 80 to 110

SPARANO+MOONEY ARCHITECTURE TBSE inc SALT LAKE COUNTY

PERFORMANCE HALL 2

SUMMARY

Abravanel Hall, designed by architecture firm FFKR with acoustics designed by Dr. Cyril M. Harris, draws inspiration from renowned concert halls worldwide. Despite its age, the Hall's design and finishes continue to charm today's patrons. Originally intended solely for acoustic symphonic performances, the Hall excels in that regard but struggles with modern performances that demand more than just acoustic excellence. Challenges arise with the Hall's ability to accommodate modern-day diverse programming mix that are now a part of its lineup. Features like variable acoustic drapes and stage extensions are hard to manage, limiting the venue's flexibility. Significant technical and equipment upgrades are necessary, as identified in the 2016 Plan and a recent lighting study. This report expands on those recommendations to improve the Hall's capabilities for all its users.



ACOUSTICS

Abravanel Hall is a wonderful space acoustically for listening to orchestral music, but it is not flawless. Based on conversations with Utah Symphony musicians, conductors, and our own observations of the Hall both empty and during the 26 May 2023 performance of Mahler's Symphony #3, we have some initial thoughts about aspects of the Hall that could be improved. Note that the Mahler performance included a chorus on risers upstage, pushed the split violins (first violins at stage right, second violins at stage left) downstage onto a stage extension, with basses and celli at stage right and a mezzo-soprano soloist standing near the conductor. This memo is a summary of ways in which the Hall appears to fall short acoustically and describes our initial thoughts about what, physically, in the hall might be modified to improve those shortfalls and make this wonderful space even better.

OBSERVATIONS:

- The Hall sounds beautiful for quiet music, but loud music can become "abrasive" or "brittle" – slightly harsh or distorted.
- High strings lose definition in the Hall becoming "hazy." Two listeners independently described the quality as "cotton wool in my ears."
- High strings are louder at the podium relative to other instruments than in the Hall. They have trouble remaining audible in loud passages.
- High strings do not like playing on the stage extension. They hear their own sound and the orchestra sounds better when farther upstage.
- It is difficult for strings to hear across the ensemble; they end up watching bows instead. It is difficult for the rear stands and out on the forestage.
- Low strings "roll around" on stage and lose definition in the Hall, becoming "wooly."
- All strings, and the flute, noted that they are frequently asked to "over-articulate" their playing.
- Percussion and horns may sound in balance at the podium but sound overloud in the Hall.
- Snare drum is asked to play "crazy soft."
- Timpani in their preferred position can lack "definition."
- Percussionists avoid "the hole" – the stage right rear corner of the stage – because the conductor perceives them as behind the beat when they play from there.
- Brass, who play from the stage left rear corner of the stage, sometimes sound distant at the podium and are perceived to be behind the beat.
- Brass can seem uncomfortably loud and are often asked to play very quietly.
- The Hall's sound could be more "present." Listening on the main floor, we found the sound slightly distant and not as engaging as the music deserved.
- The Third Tier is reportedly the best listening spot in the Hall, while in the First and Second Tiers the orchestra "sounds a mile away."
- Amplified sound is very unclear unless the retractable curtains are added to the rear wall of the house under the First Tier and Second Tier.
- Tangentially related to the Hall's internal acoustics, many of musicians mentioned a desire for risers that are curved rather than straight across.
- Unrelated to the Hall's internal acoustics, the light rail on South Temple Avenue passes the venue frequently and is sufficiently audible when it passes and can be somewhat distracting. This disturbance is likely occurring through ground vibrations and can be mitigated using protection barriers or soil stiffening. Airborne sound from the Trax line was not an issue in the Hall, however airborne noise heard in the lobby can easily be mitigated with improved glazing and entry systems.

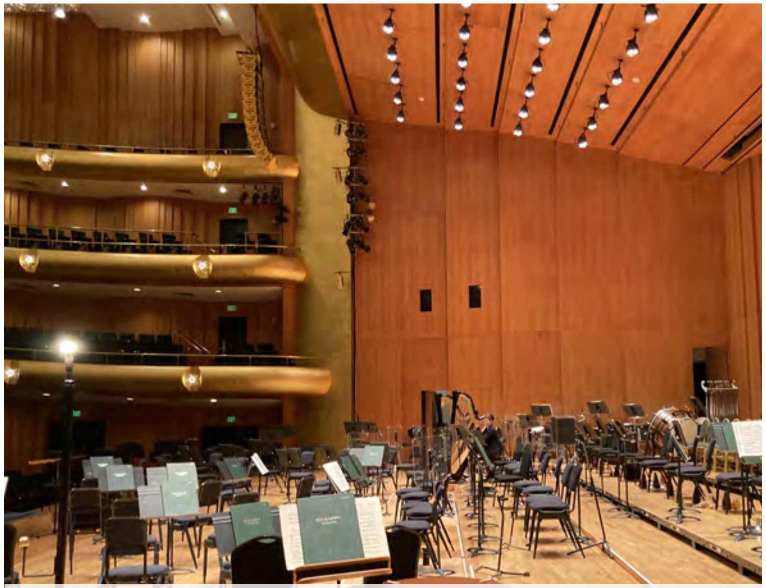
MOST OF THESE OBSERVATIONS CAN BE TRACED BACK TO 3 ASPECTS OF THE HALL:

1. The Hall gets wider and taller at the proscenium.
2. The rear wall of the Hall does not adequately control echoes (strong, late reflections).
3. The side walls of the Hall have a multitude of small, nearly 90-degree corners that dramatically affect the reflection pattern of very high frequency sound.

1: The Hall gets wider and taller at the proscenium
The walls and ceiling closest to the stage front are vitally important for providing useful, supportive reflections to the musicians and the audience. If these reflections arrive early enough after the direct sound, they will strengthen and reinforce the direct sound.

The side walls in the auditorium step out abruptly and the ceiling steps up abruptly near the stage edge, so musicians on the forestage are farther from reflective surfaces than the musicians in the stage enclosure. This positioning is too far to receive useful reflections from the walls and ceiling, leaving them feeling exposed and unsupported. Because the surfaces are farther away but are not projectively angled, the reflections off these surfaces to the front half of the audience arrive somewhat late relative to the direct sound, giving them a distant quality and degrading the orchestra's sense of presence.

Potential Solution: Add infill walls at the first bay downstage of the proscenium, most critically under the first tier. Add a "cloud" over the forestage that functions as a continuation of the stage enclosure's ceiling. These surfaces help to make the forestage sound more like the rest of the stage when the stage extension is in place. Even when the stage extension is not used, the proposed infill walls will provide clean, well-timed supportive reflections from the orchestra to the audience. Due to their location, they will be particularly helpful for the strings.

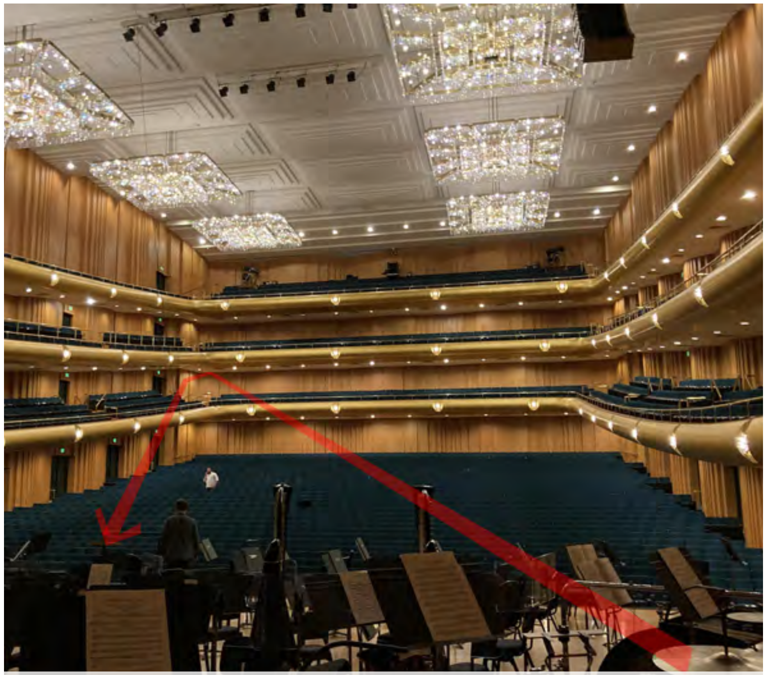

STAGE AND PROSCENIUM

2: The rear wall of the Hall does not adequately control echoes
The rear wall of a concert hall must return sound to the stage so the musicians can accurately gauge what the audience may be hearing ("room response") and so they don't feel that they are playing into a sponge. The rear wall must also reflect sound to the audience so they feel enveloped in sound. However, both sets of reflections (to the stage and to the audience) must be sufficiently broken up in time and weakened in strength so that the reflections are not perceived as echoes, which degrade clarity, or distort the perception of timing and create "dead spots" where listeners cannot hear a sound clearly and therefore feel that they cannot hear that sound at all.

The rear wall is shaped to scatter sound, to some degree. Echoes from the rear wall are not terrible, and musicians do sense some room response. However, "the hole" at the rear stage right corner and the clarity and timing issues for the brass seated in the rear stage left corner suggest that there is an echo from the rear corner of the stage, off the opposite rear corner of the room, then back to the conductor's podium. Other timing issues described on stage may also be somewhat influenced by rear wall echoes.

The need for curtains on the rear wall for amplified events is absolutely a sign of echoes off these walls when loudspeakers are the sound source. It is likely that extending the removable curtains to the back of the third tier would further improve clarity for amplified events.

Potential Solution: Identify which portions of the rear wall are most problematic for echoes and


HARSH REAR WALL REFLECTIONS

apply additional sound diffusive treatment to them, so the reflections are weakened enough to make them useful room response and envelopment rather than troublesome echoes. Extend the adjustable curtains to the back of the third tier so the entire rear wall can be made echo-free for amplified events. Adjusting the fixed diffusion on the rear wall will make the room clearer for musicians and audiences alike. Extending the adjustable absorption will make amplified events even clearer.

3: The side walls of the Hall have a multitude of small corners
Side walls in a room are critical surfaces for delivering supportive reflections to the audience and for sustaining reverberation. They must be shaped to some degree so that they reflect sound evenly and sustain sound without ugliness or harshness, and especially without trapping sound as 'flutter," or high-frequency sound over-sustained in repetitive reflection patterns. There is no one "right answer'"to how to achieve this balance, but the orientation, texture, and scale of the side wall surfaces have an enormous effect on the ultimate acoustic character of the room.

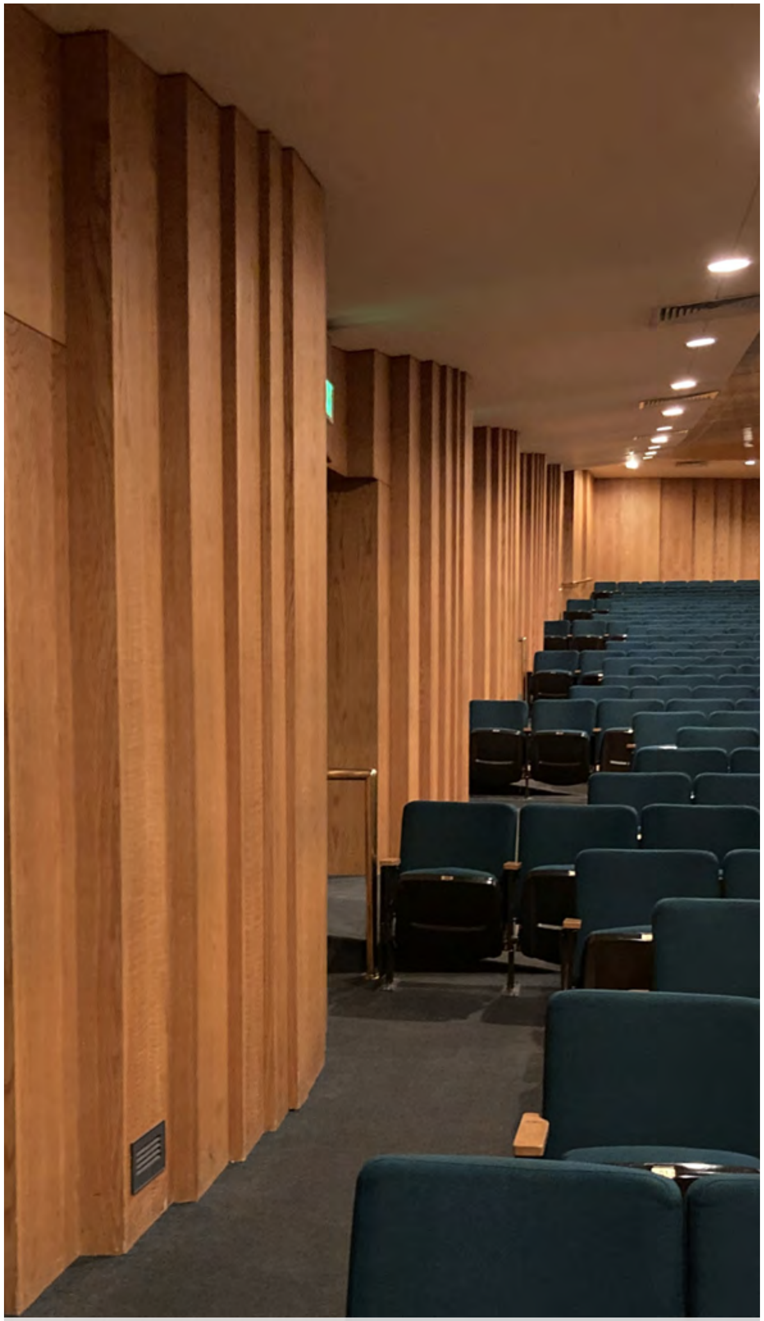
The side walls have a macro-scale undulation that successfully spreads and blends lower- and mid-frequency sound, and they have a stepped "ziggurat" shape that scatters high frequencies (which are physically smaller, with shorter wavelengths) much more aggressively. Critically, the side walls are covered with many small, nearly right-angle corners, which grab high-frequency sound (and only high-frequency sound) and reflect it back towards the front of the room.

In many rooms we have correlated, repeated, closely-spaced high-frequency reflections with harshness, "loudness," lack of clarity, and lack of definition. A welter of high frequencies spitting back towards the stage is the reason for the haziness in the high strings and the reason that listeners cannot "find" them in a loud passage. The high-frequency reflections are the reason snare drums sound "too loud." Low-frequency instruments (basses, timpani, celli) that depend on their overtones for definition end up sounding "woolly" or "muddy" due to this confusion at high frequencies. At quieter dynamic levels, the instruments are not generating as much high-frequency sound and so the effect is less noticeable, but in loud passages, the high-frequency output is much greater and the edginess and confusion from the high-frequency reflections is more significant.

It is likely that this high frequency haze is also reducing the sense of presence in the room, and that correcting it could make the orchestra sound even more exciting and "right there."

Potential Solution: Apply shaped wood elements to the portions of the side walls that have corners facing the stage, perhaps in combination with small areas of thin wool felt (which is absorptive only at high frequencies) so that the walls continue to reflect and scatter sound, but they do so more evenly at high frequencies.

With careful investigation and design, these adjustments to the side walls can maintain the fundamental beauty that the Hall offers for quieter passages, while also extending that beauty and clarity into louder, fuller passages.



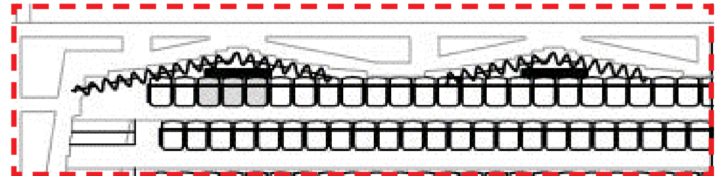
SIDE WALL CRENELATIONS

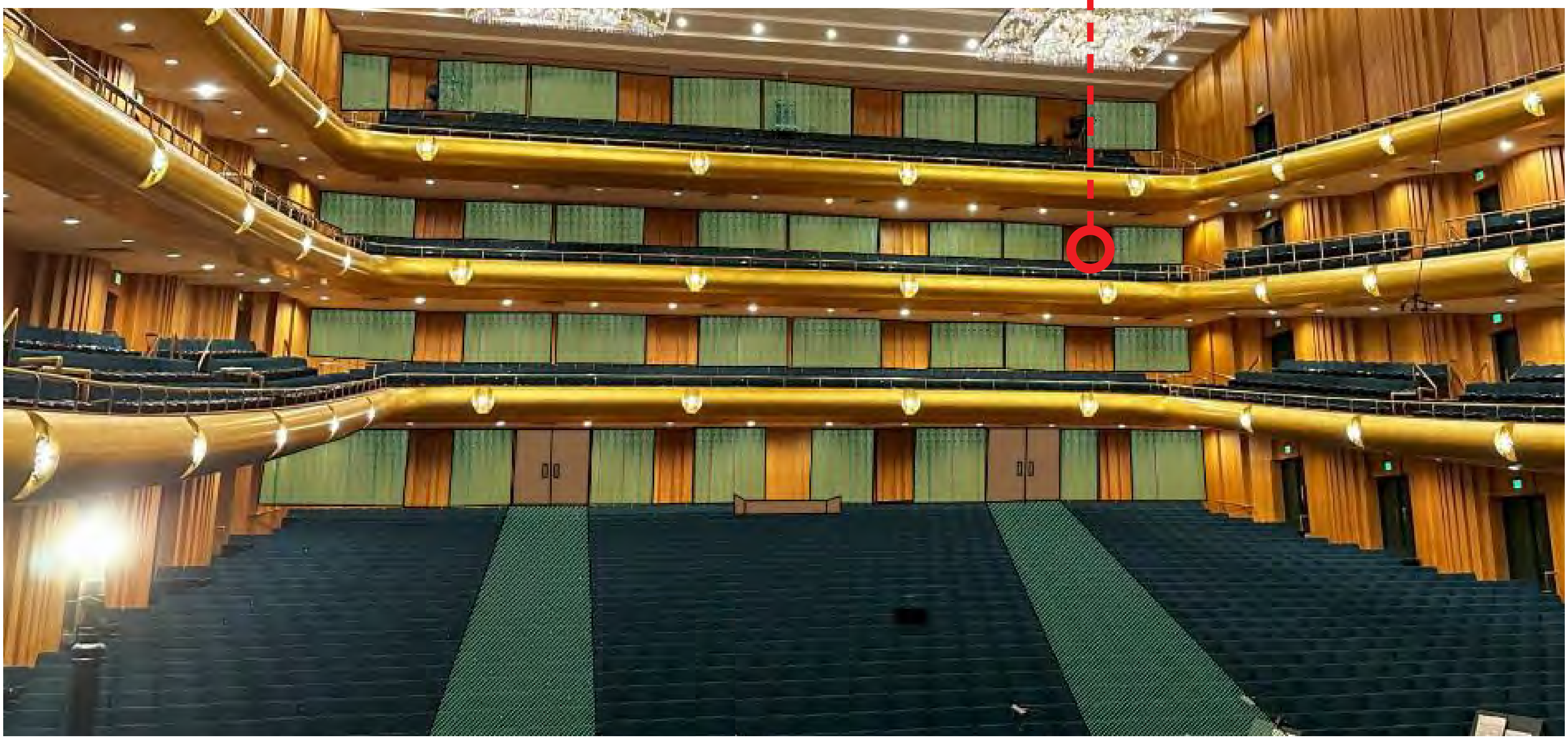
ADJUSTABLE ACOUSTICS

The existing adjustable variable acoustic draperies in the audience chamber are a temporary solution made permanent. As discussed in the earlier section on acoustics, providing a more robust system will go a long way in improving the Hall's acoustics for amplified events. We would propose a simple slide and rail system to be deployed at the rear of the Hall and along the side walls closest to the stage. Wall drapery would be stored behind a new acoustically-transparent pocket at the center of the current wall shaping. With the cleanliness and simplicity of the underside of the balconies, a "hand drawn" system will provide the cleanest look to match the existing architecture, as well as provide a cost-efficient solution. Side wall drapery will likely need automatic deployment.

Estimate:

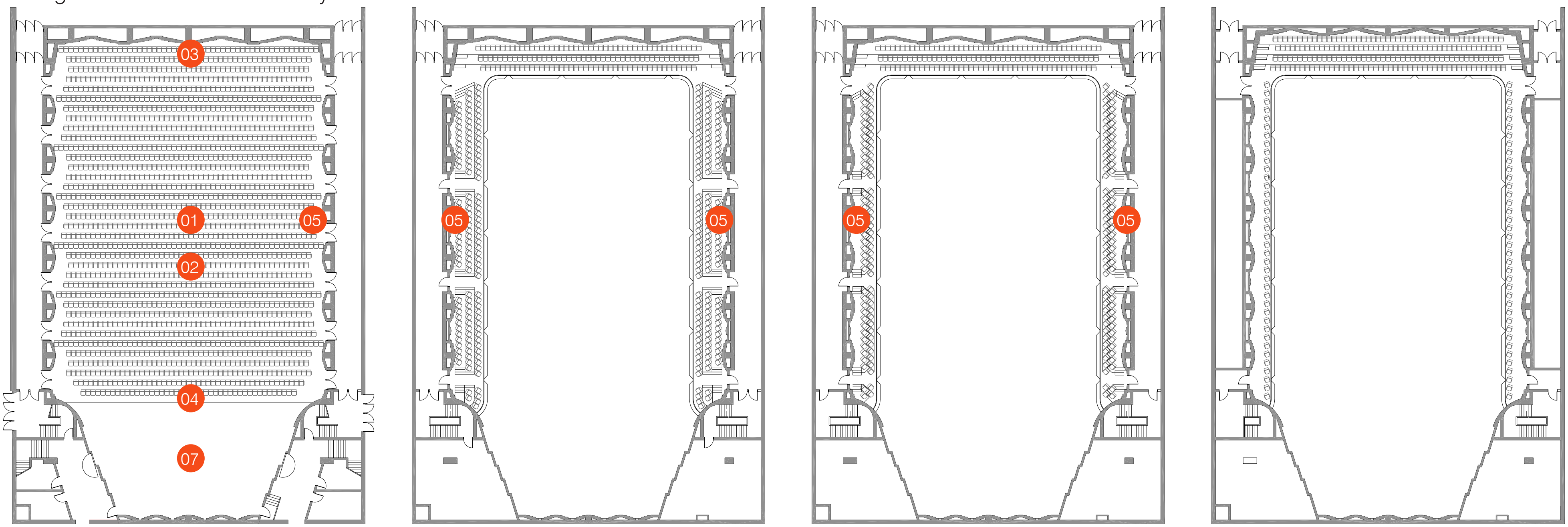
Walk Along Track:	400 linear feet along rear wall at $100/ft	$40,000
	35 linear feet along side walls (x2) at $100/ft	$7,000
Rear Wall Draperies	8'x12' (x32) at $2,000 ea	$64,000
Side Wall Draperies	8'x12' (x16) at $2,000 ea	$32,000
		$143,000





ACCESSIBILITY + SEATING LAYOUT

As identified in the community outreach efforts, addressing accessibility in the Hall is one of the highest priorities. The following identified issues affect the seating configuration and Hall accessibility.



OBSERVATIONS:

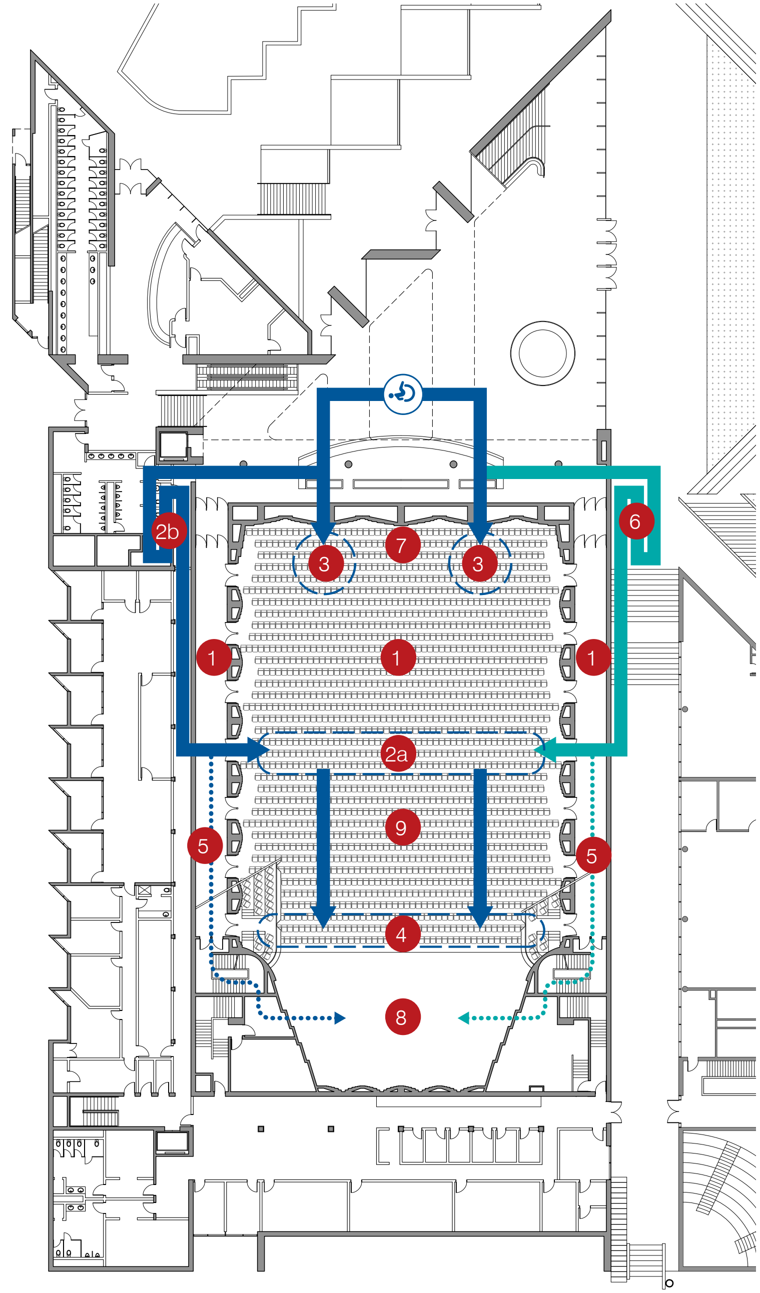
1. The floor of the existing audience chamber was constructed as an iso-acoustic curve. While the room acoustics and audience sight lines that result from this method are desirable, the method creates an unsafe and inaccessible room. Some identified issues stemming from this original design are the floor slopes that are steeper than 15% without handrails, dangerous cross-slopes at door thresholds, and a lack of warning systems for those with visual impairments.
2. The audience chamber currently utilizes a continental seating layout. At its widest, the configuration features 54 seats in a row, making it very difficult for patrons sitting in the middle sections of the Hall to leave their seat and return in the allotted intermission time.
3. The Hall currently lacks a permanent audio mix location, which creates operational limitations or requires seat kills for amplified uses of the space.
4. Extending the stage is difficult to do quickly and efficiently.
5. The existing seat count is a critical element for current users and for attracting future users. Adjustments to seat counts should be carefully weighed with current and future users, accessibility, and acoustic needs. To reduce the number of lost seats, “soft kills” and acoustic treatments should be explored. In particular, while the seats close to the side walls in the orchestra chamber and along the back rows of the balconies are not acoustically ideal, they should be kept physically and “removed” through “soft kill” methods rather than permanently deleting them.
6. Current seats need to be updated or replaced.
7. Stage floor is at the end of its usable life.
8. Various site line issues exist due to railings and the current seat layout. Any new seating layout should mitigate these issues while meeting code requirements.

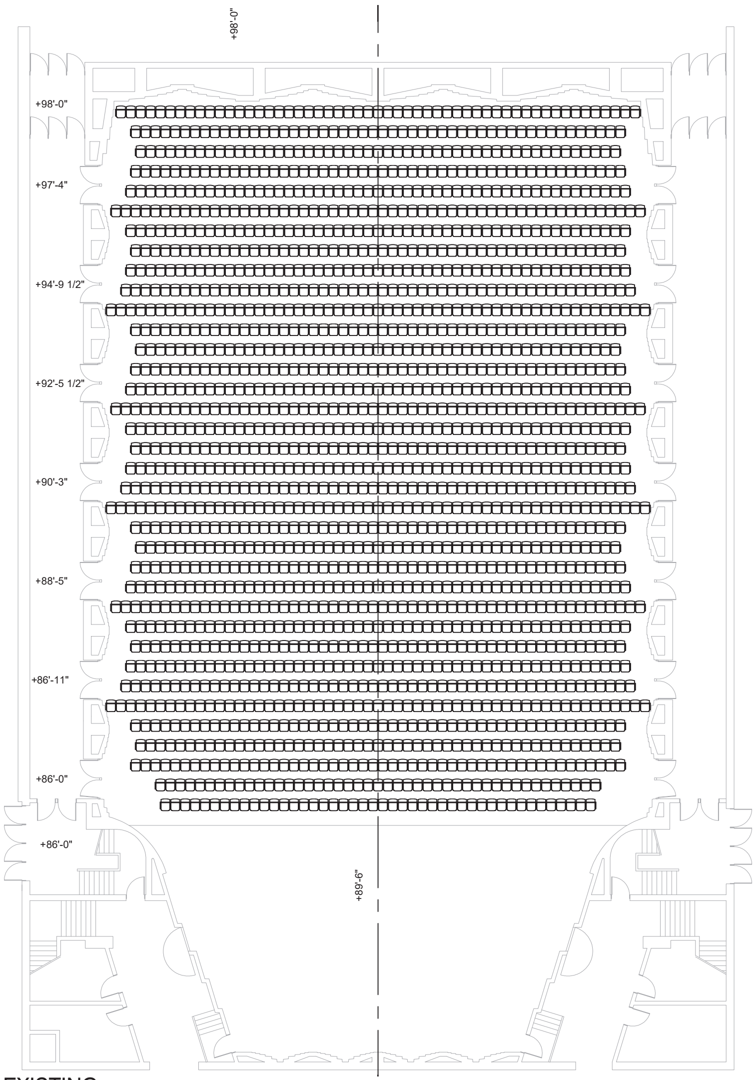
RECOMMENDATIONS

Ensuring safe and sufficient access to the audience chamber involves more than just adding new accessible seating locations. The following recommendations should be implemented:

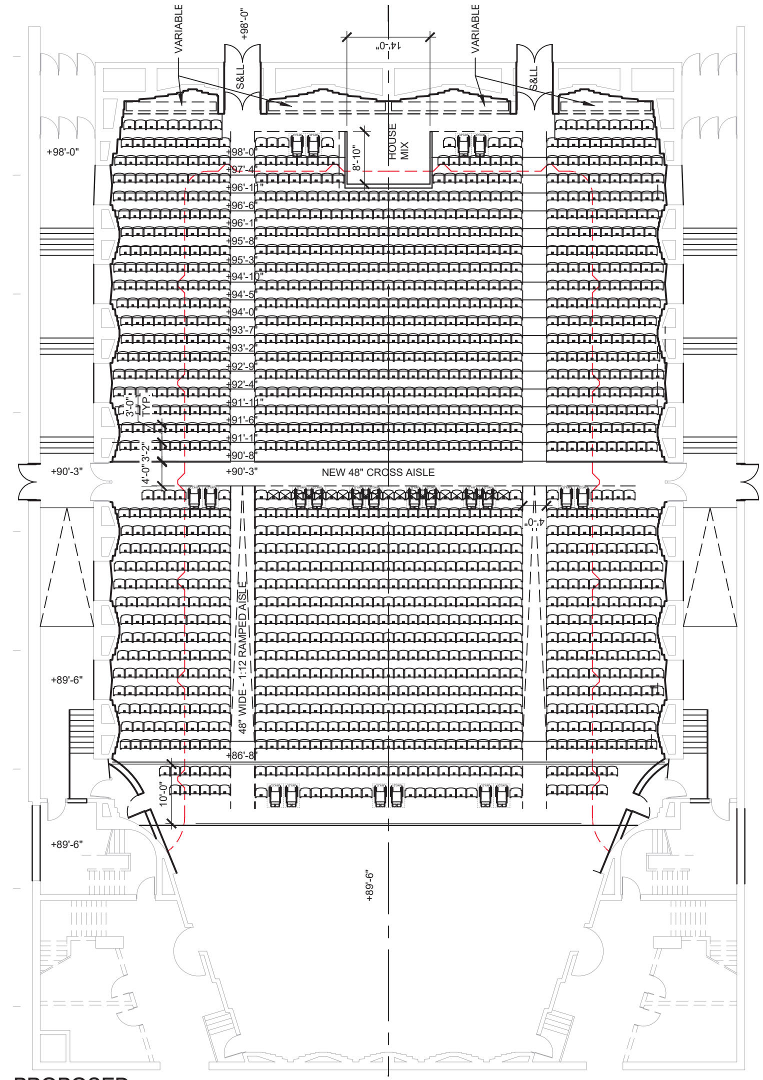
1. The entirety of the floor slab needs to be demolished and rebuilt in order to fix the current unsafe floor slopes both in the audience chamber and the sound and light locks. As an aside, rebuilding the floor will facilitate flipping the air return and supply services for the Hall.
2. Accessible seating can be provided to the center of orchestra level (2a) through a new ramp adjacent to the existing sound and light locks. The elevation change from the lobby to the middle of orchestra level drops approximately 7'-9", which is too far for a simple ramp to be installed in the existing sound and light locks. Therefore, a new ramp with the appropriate length will have to be installed in the area that is currently occupied by the 'long green corridor" and men's bathrooms (2b).
3. Accessible seating can be provided in the rear portion of the orchestra level through adding new sound and light locks from the lobby directly into the Hall. This approach will involve moving the existing concessions and coat check into a new location.
4. Accessible seating can be provided at the lower portion of the orchestra through internal code-compliant ramps from the center cross-aisle.
5. The accessible ramps that terminate in the middle of the orchestra hall are approximately equal to the stage level. Therefore, it may be possible to rework the remainder of the sound and light lock to provide access to the stage from the audience at this level. More study will be required to understand the impact this approach will have on the sound and light locks above and to ensure appropriate headroom is provided at each level.
6. Access to the auditorium can be accommodated from either one or both sides of the Hall. To provide access from both sides, the alley between UMOCA and Abravanel Hall must be filled in. It should be noted that the extents of the required ADA ramps will take up a significant portion of the alley. Egress and code separations will need to be carefully designed to achieve this additional ramp. CCI did a study for the Salt Palace Convention center that indicates filling in the alley between the two buildings will be possible from a code perspective. For details on that report, refer to the "Site and Plaza" section of this masterplan. A similar report will be required to supplement design documentation for any remodel or addition.
7. A permanent audio mix location should be installed at the back of the orchestra level.
8. In addition to the layout and floor slope revisions, a new machine pit and seat wagon storage area should be included in the future design work as the floor must be demolished. This system will allow for a more efficient room turnover and facilitate reduced labor costs in room setup and potentially allow for multiple room bookings on a single day. The stage floor is to be rebuilt as part of this work.
9. Cross aisles should be added to facilitate patron flow.

The diagrams on the following pages provide an initial concept for the seating reconfiguration that integrates each of the points above, including the acoustic recommendations of adding new stage reflectors and adjustable drapery.





EXISTING

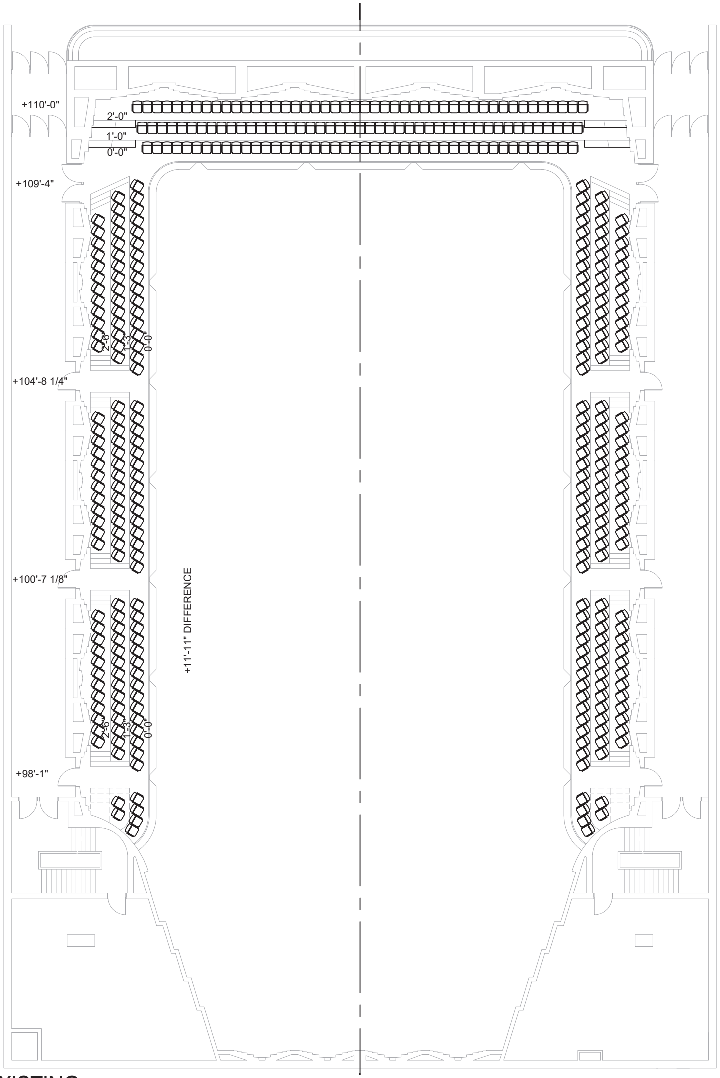


PROPOSED

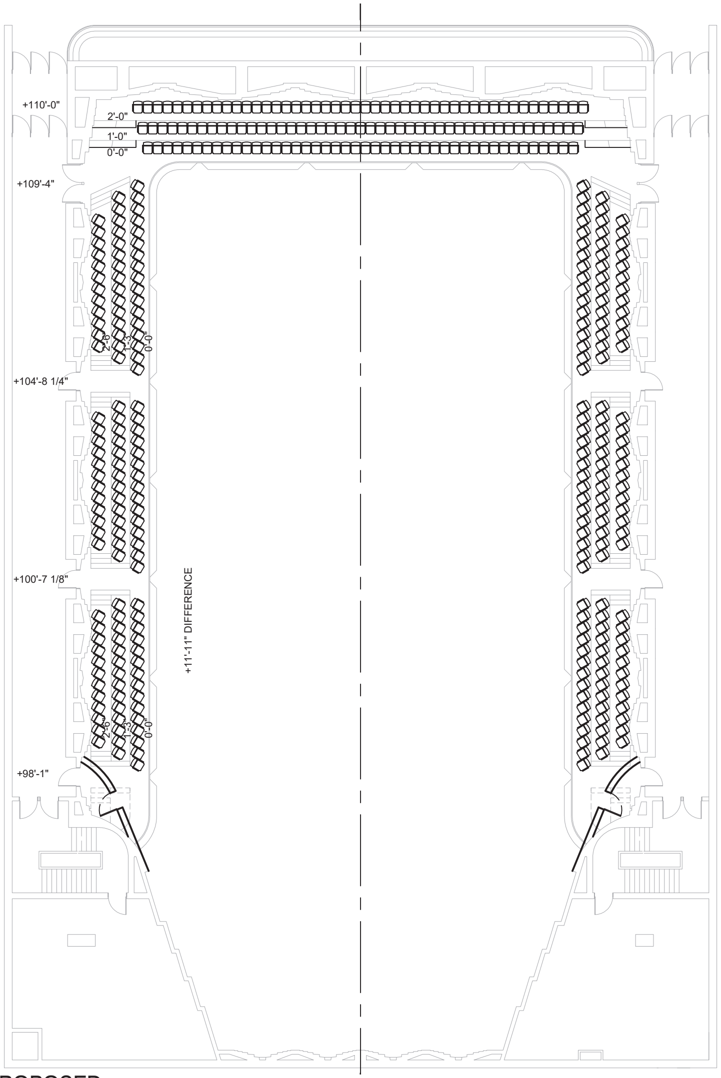
ORCHESTRA LEVEL

	Existing	Proposed	Difference
Orchestra	1830	1585	245
Tier 1	400	388	12
Tier 2	296	288	8
Tier 3	262	258	4
Total	2788	2519	269

SPARANO+MOONEY ARCHITECTURE



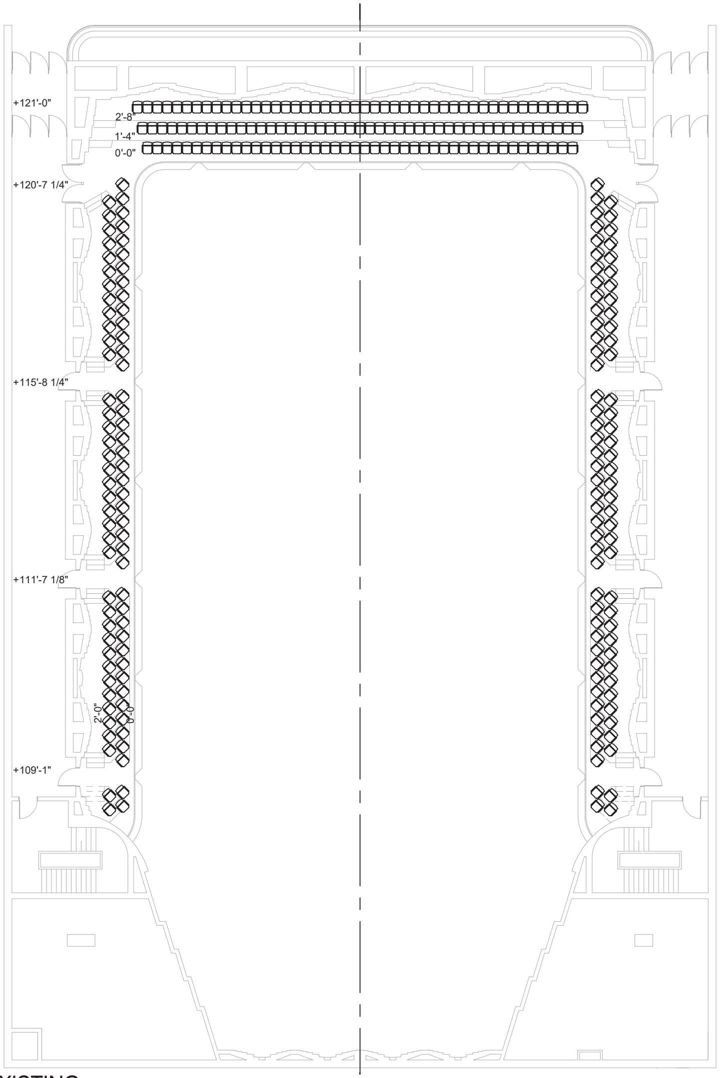
EXISTING



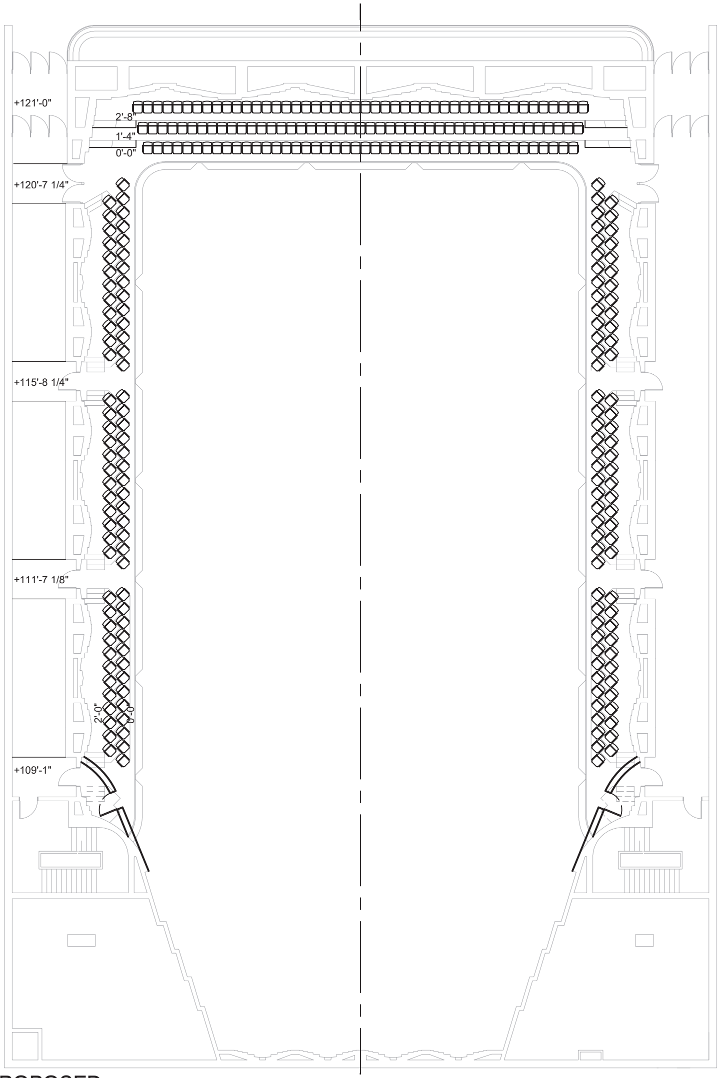
PROPOSED

1ST TIER LEVEL

	Existing	Proposed	Difference
Orchestra	1830	1585	245
Tier 1	400	388	12
Tier 2	296	288	8
Tier 3	262	258	4
Total	2788	2519	269



EXISTING

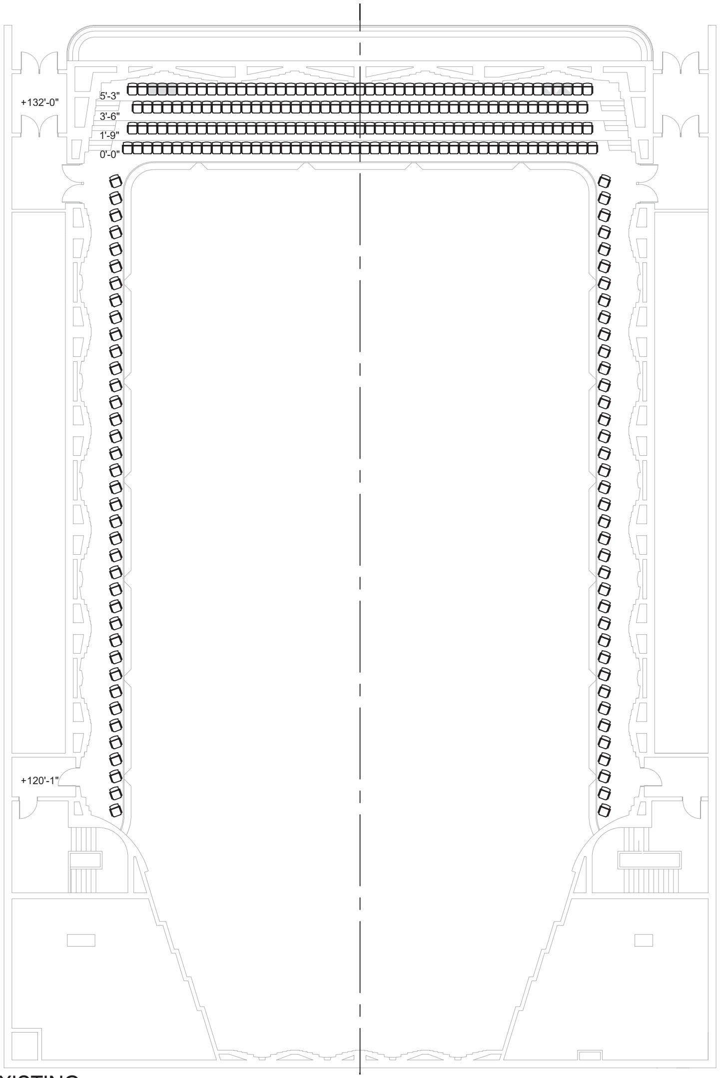


PROPOSED

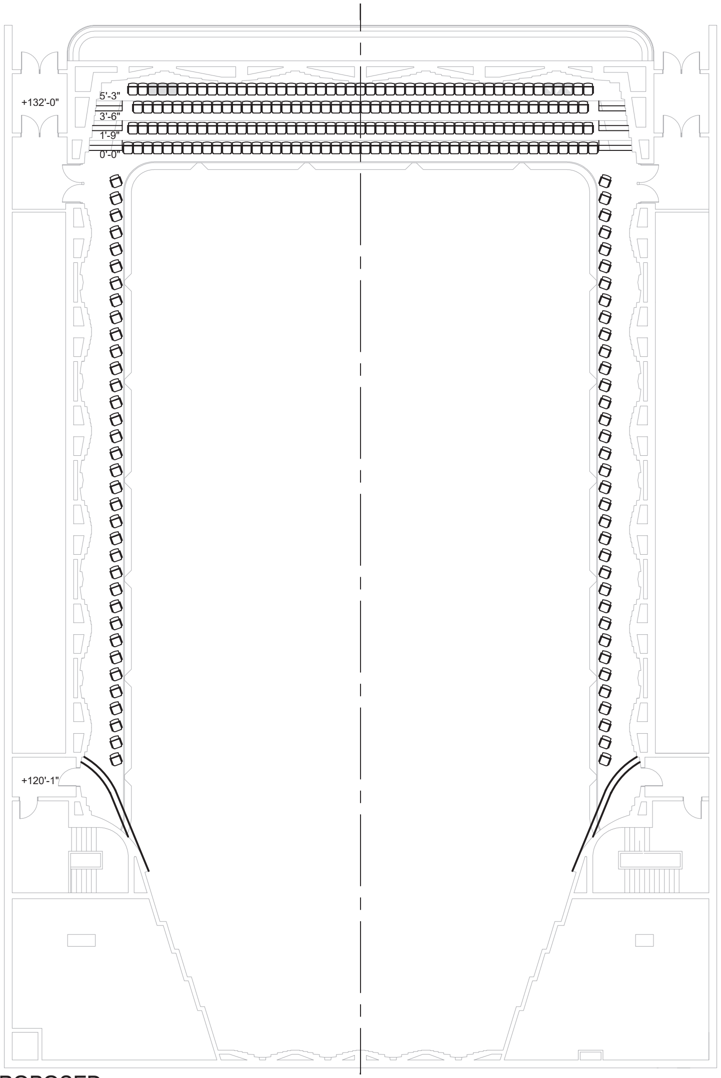
2ND TIER LEVEL

	Existing	Proposed	Difference
Orchestra	1830	1585	245
Tier 1	400	388	12
Tier 2	296	288	8
Tier 3	262	258	4
Total	2788	2519	269

SPARANO+MOONEY ARCHITECTURE



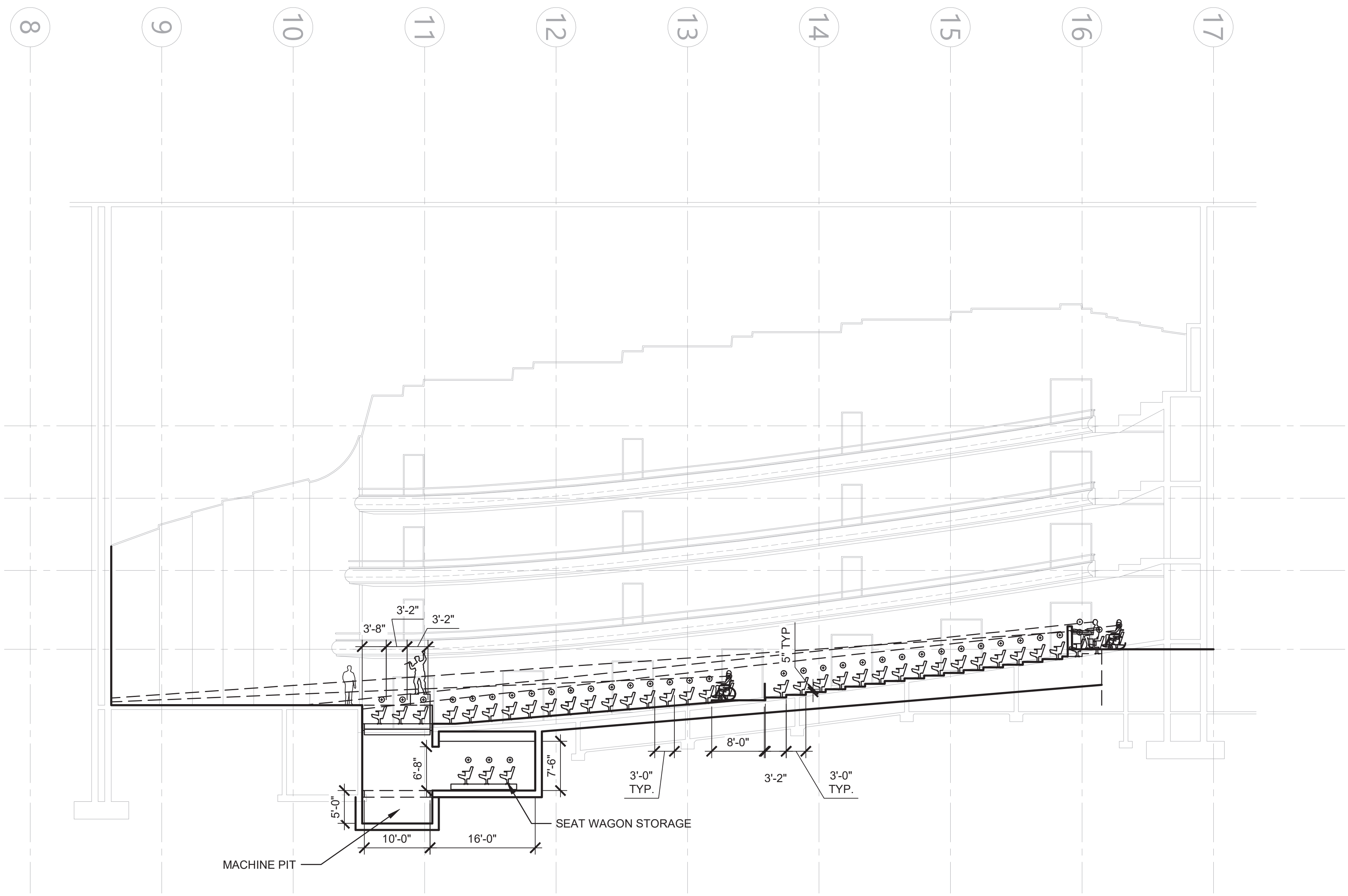
EXISTING



PROPOSED

3RD TIER LEVEL

	Existing	Proposed	Difference
Orchestra	1830	1585	245
Tier 1	400	388	12
Tier 2	296	288	8
Tier 3	262	258	4
Total	2788	2519	269



SPARANO+MOONEY ARCHITECTURE

LIGHTING + PERFORMANCE TECHNOLOGY

LIGHTING

In 2022, GSBS Architects conducted a feasibility study for stage lighting replacement options at Abravanel Hall. The information developed in that study was reviewed as part of the scope of this master planning effort and found to still be current and appropriate for the venue. What follows are additional recommendations to the work previously completed. That study is included as an appendix to this masterplan and should be referred to in conjunction with the following recommendations.

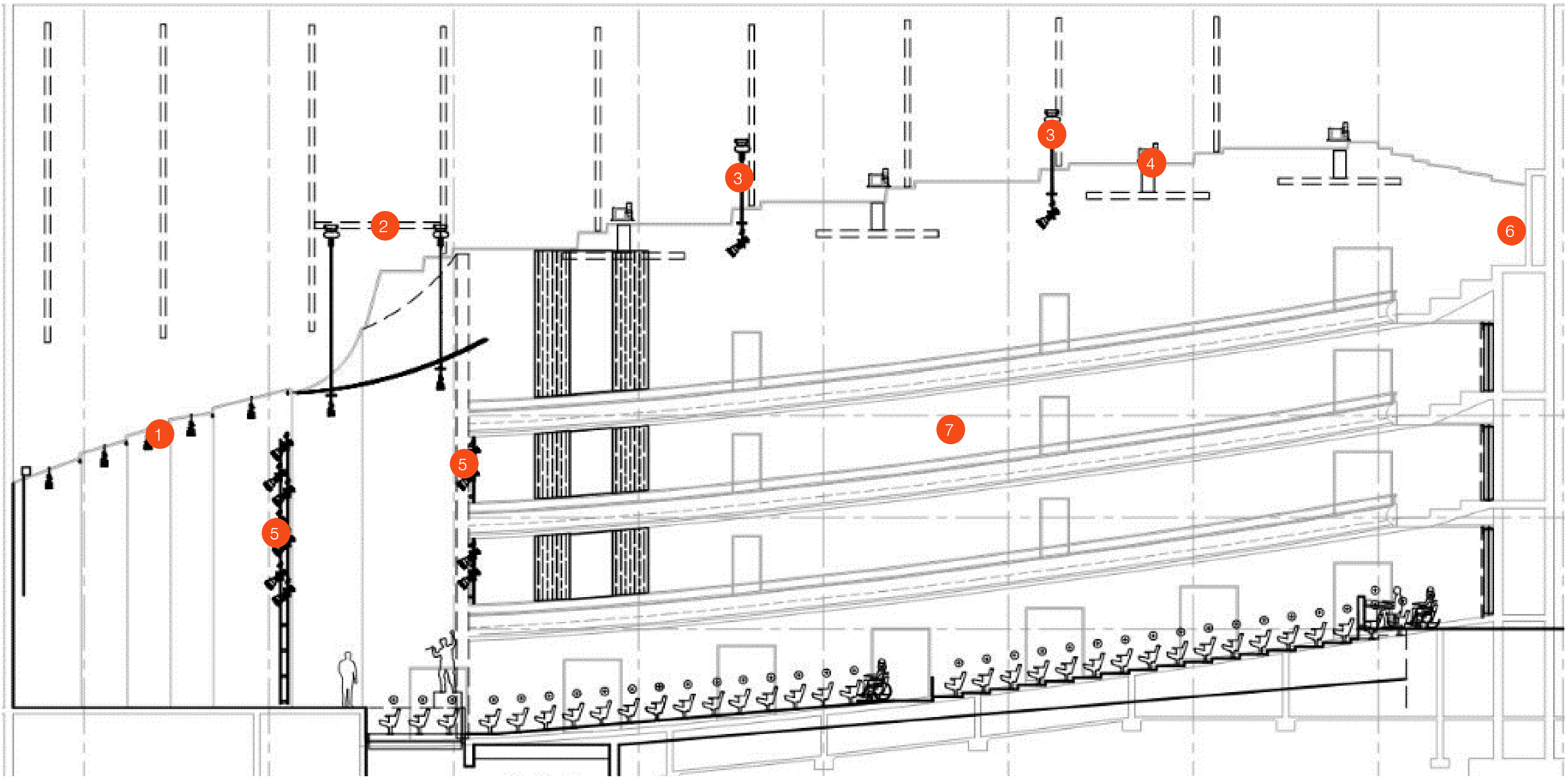
The existing structural study determining the capacity of the roof trusses should be updated as required to determine if additional rigging points may be added. Absent of a significant structural upgrade over the stage, there is not much capacity to move beyond the GSBS study.

OBSERVATIONS:

- Performance lighting over the concert hall platform is affixed directly to the ceiling as individual fixtures and wiring. The upstage zone is inadequately illuminated as is the apron area/stage extension area.
- The GSBS Architects' study noted the same deficiencies and recommended replacing the individual incandescent fixtures with a power- and data-integrated batten and mounting LED fixtures to it. It also recommended adding a lighting position for the upstage area.
- Side boom vertical positions just inside the proscenium do not support the desired quantity of fixtures and would benefit from an additional position.
- Given the limited capacity of the roof trusses, it is recommended that the rigging points currently in place remain and no additional points be added. Support for the continuous integrated battens will need a review by a structural engineer but should be similar to the point loads from the existing individual fixtures.
- Follow spot use is limited as the existing spotlights employ fans to keep the lamps from overheating and the fans are considered too noisy.

RECOMMENDATIONS:

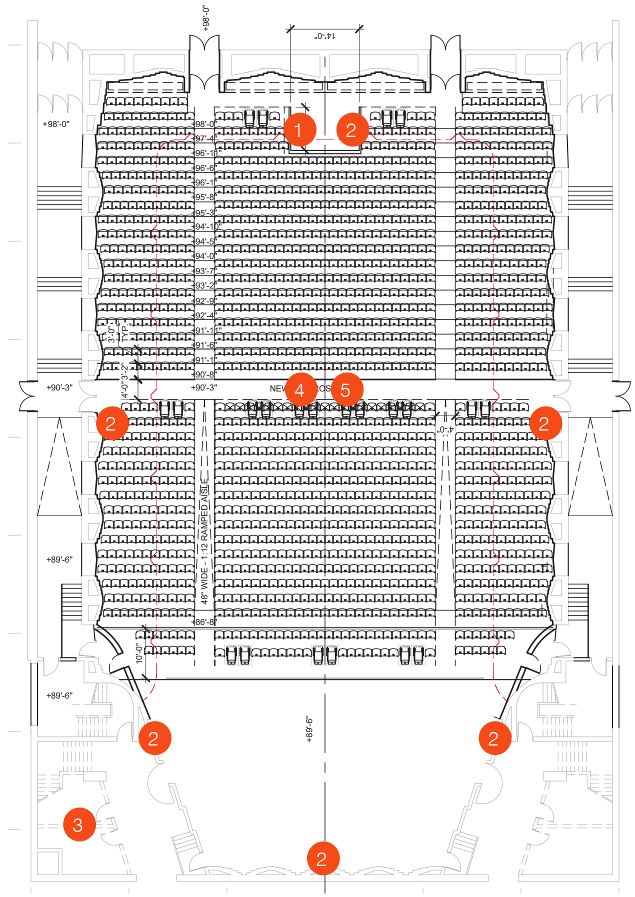
1. The GSBS study's recommendation for replacement of the fixtures with LED units, the integrated battens and one additional position over the rear stage should be implemented. Adjust the cost estimate in the study for inflation.
2. In addition, two new chain hoisted tri-battens should be implemented over the forestage through holes in the new reflector. This equipment will provide much-needed overhead wash lighting for the forestage area and can provide a new front light position for the stage. ROM budget approximately $75,000.
3. The lighting positions over the auditorium should be motorized as well and replaced with LED fixtures. These items could employ a line shaft hoist for each position. The use of LED fixtures will reduce the amount of wiring and the need for a raceway as well as allowing for the simple addition of color via programming rather than accessing the fixture directly. ROM budget estimate of $80,000 per lighting position for hoists, batten, and LED fixtures (x4).
4. Chandelier hoists should be upgraded or replaced, and secondary holding brake added. ROM estimate of $30,000 per hoist (x8). New solid state pushbutton controller(s): ROM estimate of $50,000.
5. Strengthening existing vertical boom lighting pipe locations and add new high side positions at the edge of new proscenium reflector. Ideally these would be integrated into the new acoustic reflectors rather than hung from the tiers. ROM estimate of $30,000 for each existing position (x2) with new positions (x2) to be integrated and costed with reflective panels.
6. New follow spots with "silent mode" and fan control should be trialled and if found to be acceptable, purchased. The existing follow spot positions should remain. ROM estimate of $20,000 per spot (x2).
7. New DMX/CAT6 control wiring run to the positions with existing electrical circuits to be reused as non-dim circuits. ROM Estimate by cost estimator.


1
2
3
3
4
5
5
6
7

TECHNOLOGY INFRASTRUCTURE

The building was not designed with modern AV systems in mind. All systems and infrastructure have been added on over time, creating an overall infrastructure and system that is not intuitive and challenging for operators who don't work regularly in the building. As such, there is very little infrastructure within the venue that we would recommend reusing. With the exception of the main AV rack location and the loudspeaker positions, we would recommend a full redesign of AV systems within the Hall. A recent project was completed that added a new IDF to the building. Through the course of that project, a series of recommendations were made to bring the network backbone up to a standard that will allow for future upgrades to the building networks. That report is included in the appendices of this masterplan. What follows below builds on and rounds out those recommendations. Recommendations are keyed to the proposed plan of the Hall.

OBSERVATIONS:	RECOMMENDATIONS:
1. There is no audio mix position, which is critical for most amplified performances within the space. When required, a temporary position is set up in the house and cabling is run in the plenum under the floor.	A permanent audio mix position, capable of supporting the needs of touring front-of-house engineers, should be added to the orchestra level of the Hall.
2. There is minimal audio connectivity and no video or network infrastructure in the Hall for connection of temporary performance equipment. This is a requirement of modern performance venues of this type.	Provide new patch plate locations within the Hall that run back to the main AV racks, terminating Vin audio, video, and network patchbays. This provision will allow for connection of cameras, loudspeakers, and other temporary equipment used for performances.
3. There is not a dedicated production network for audio and lighting systems, which is required for most modern venues.	Provide dedicated network switches and cabling infrastructure to support the connection of networked AV equipment and distribution of digital audio and video signals.
4. The current production intercom system is minimal and not often used.	We recommend the addition of a wireless intercom system. This addition will minimize the amount of infrastructure needed to improve the system and also allow for flexibility in channel count and technical staff location while using the system.
5. The current assistive listening system meets ADA requirements.	We would recommend upgrading the system to a combination FM + Wireless transmission product. This approach will allow patrons to download an app onto their phone to receive program content, rather than using a receiver that needs to be checked out and worn around their neck. Most modern hearing aids can connect to a smart phone via Bluetooth, which is preferred to receiving assistive listening audio over a physical receiver. These systems also tend to provide a higher-quality audio experience.



PERFORMANCE HALL AUDIO IMPROVEMENTS

OBSERVATIONS:	RECOMMENDATIONS:
1. The main loudspeaker system does not provide adequate coverage throughout the space. Particularly, seating under the balconies do not receive high-frequency coverage and thus intelligibility is reduced in those areas.	• Add fill loudspeakers to the underside of the balconies to provide adequate coverage.
2. The loudspeaker system configuration is a stereo pair of line arrays. This system is great for live music, but for speech-heavy programming (stand-up comedy, cinema, etc.) a center array is needed to provide better intelligibility and imaging of the sound source.	• Provide center array that can be flown for programming where it is needed.
3. Considering the timeline of the potential renovations, the existing loudspeaker system will be approaching its end-of-life at the time work would begin.	• Replace the full loudspeaker system at the time of the renovation.
4. The Meyer loudspeaker system that is installed provides powerful processing capabilities but is also a system that can be complicated for inexperienced users. During our investigations, it appeared that there were no calibration presets created for different program types to give visiting front-of-house engineers a recommended starting point for their mix. This creates a scenario where less-experienced engineers (who are common) are going to struggle mixing in the space.	• Provide processor presets with the new system, configured for typical program types.

SPARANO+MOONEY ARCHITECTURE TBSE inc SALT LAKE COUNTY

PERFORMANCE HALL PROJECTION STRATEGY

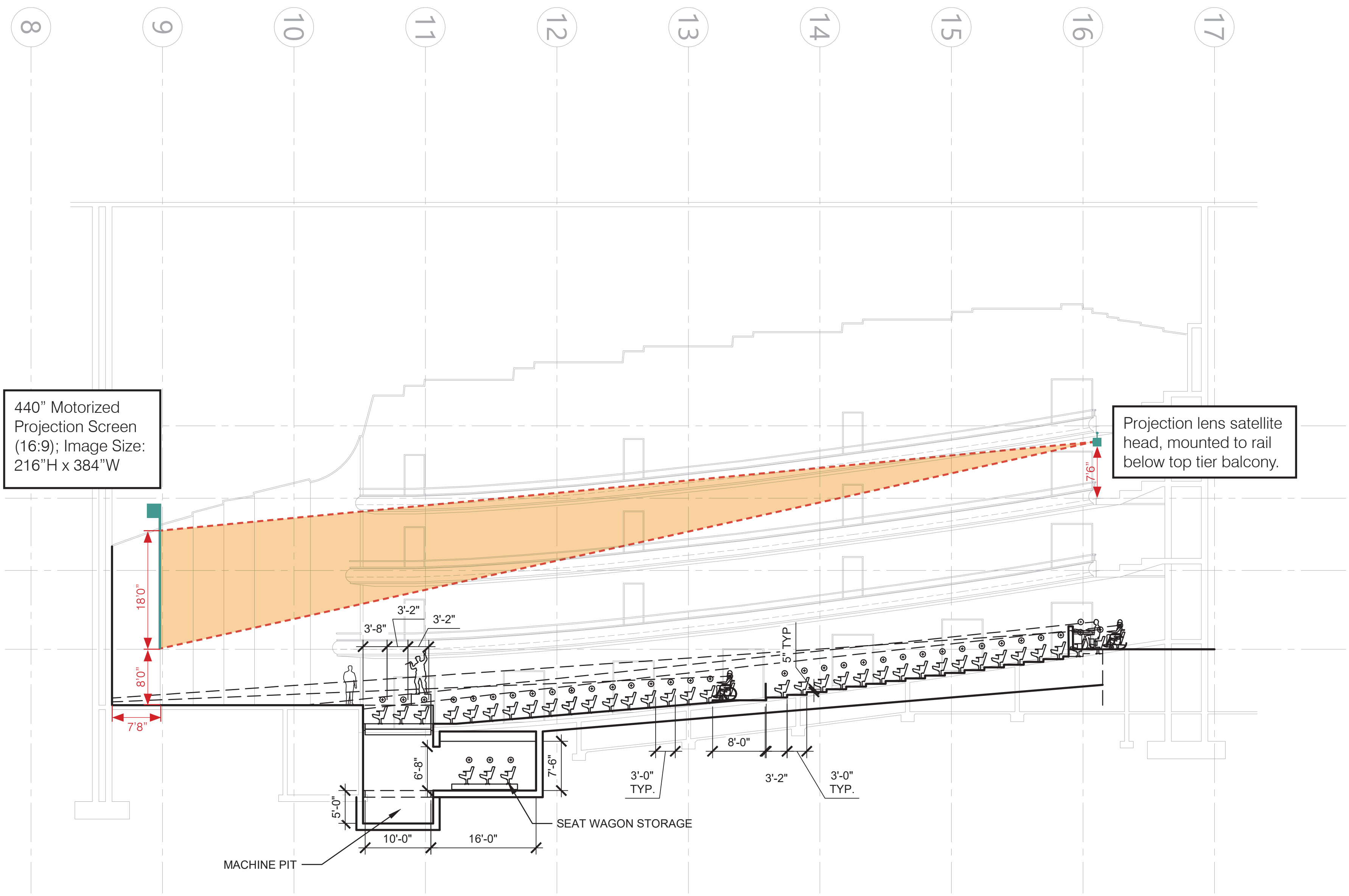
OBSERVATIONS:	RECOMMENDATIONS:
1. The existing projection screen is a non-standard size. It was designed to support an event that utilized multiple projected images of legacy aspect ratios. Modern video content requires masking to provide a clean image. If the screen were to fail, it would need to be completely replaced.	• Replace the motorized projection screen with a modern, acoustically-transparent screen that is of an appropriate size and aspect ratio.
2. Projectors are located on the highest tier, where seats are blocked off to accommodate their location. In addition, the projectors are not acoustically isolated from the hall – which creates distracting fan noise for audience members.	• Install a modular projection system, a relatively new technology that breaks the projector into two components. A rack-mounted processor/light generator, which lives in the main AV equipment rack, and the lens head that is connected to the generator via a fiber optic cable. This product removes the fan noise to the rack location and provides a high-lumen output (up to 40,000 lumens) at the lens head, which is relatively small and can be mounted to the underside of the highest tier balcony. This approach will allow for high-quality video projection, without blocking seats and with minimal fan noise. Multiple fiber connection points could also be provided to allow for multiple projector locations.

Movie Screenings + Presentation:

Multiple light engines combine to produce a high-lumen output (up to 40k lumens) routed to a single lens head. This approach will produce a high-quality image, while minimizing footprint and fan noise within the Hall.

Projection Mapping:

Fiber connection points can be provided at strategic locations in the Hall. Multiple lens heads can utilize one or multiple light engines to produce multiple projected images. These can be used for projection mapping or atmospheric projections within the Hall, accompanying a performance.


8
9
10
11
12
13
14
15
16
17
440" Motorized Projection Screen (16:9); Image Size: 216"H x 384"W
Projection lens satellite head, mounted to rail below top tier balcony.
7'6"
18'0"
8'0"
7'8"
3'-8"
3'-2"
3'-2"
5" TYP
8'-0"
3'-0" TYP.
3'-2"
3'-0" TYP.
6'-8"
7'-6"
5'-0"
10'-0"
16'-0"
SEAT WAGON STORAGE
MACHINE PIT

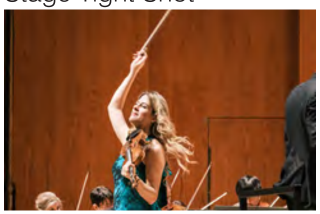
PERFORMANCE HALL BROADCAST SYSTEM

Five fixed camera locations are proposed for the Hall that could be operated by a single person. The goal is to provide flexibility to cover most uses while remaining cost-effective and requiring minimal staff to operate. The production capabilities as shown below would facilitate the creation of portable video wall locations that could be deployed across County venues with concert hall feeds. A cost-per-mobile unit has been outlined in the cost estimate provided at the end of this documentation. Regardless of the feasibility of deploying mobile video projections around the County, the below camera positions should still be provided.

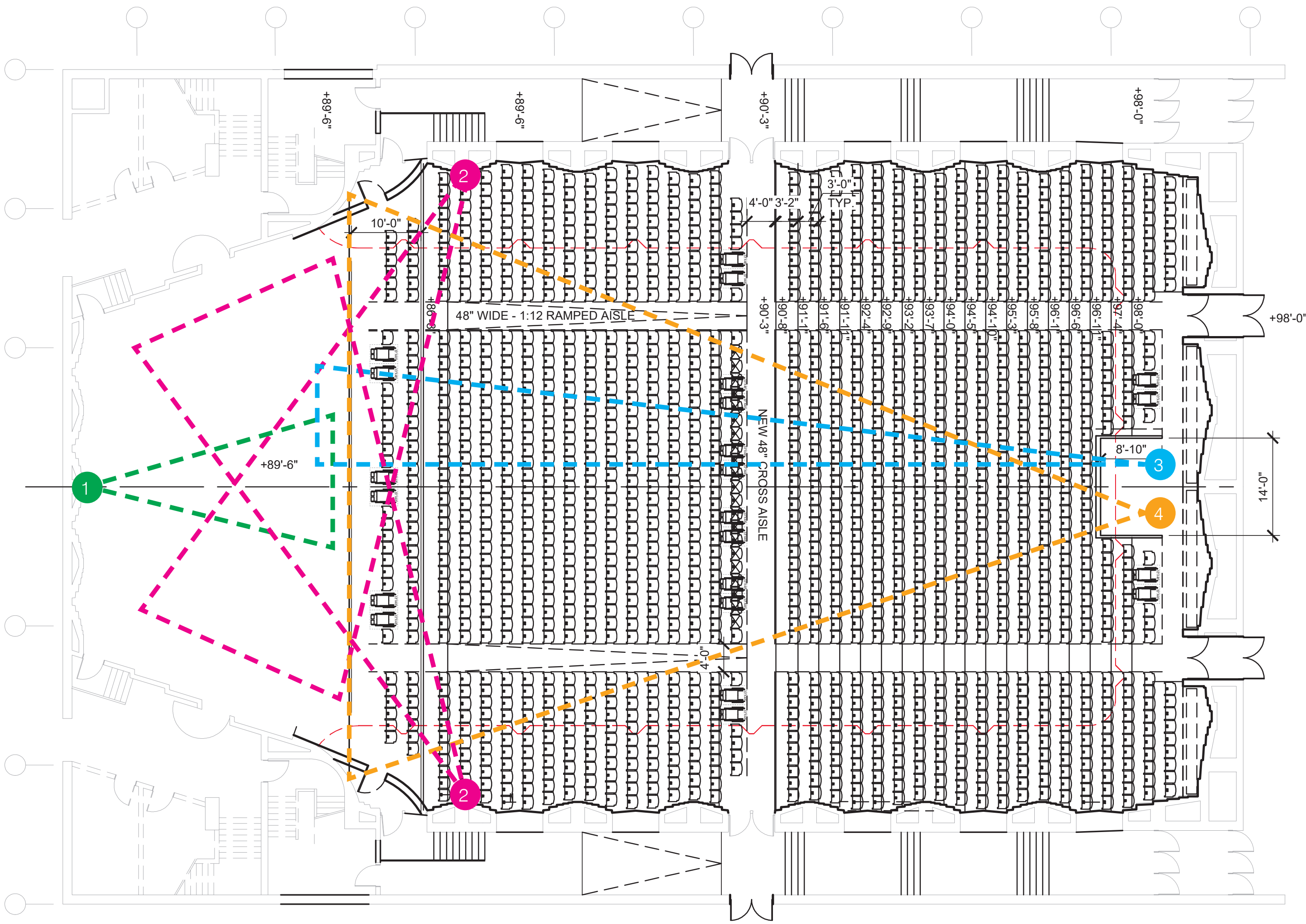
1. Conductor Cam

2. Cross Shot / Over Shoulder

3. Stage Tight Shot



4. Stage Wide Shot



SPARANO+MOONEY ARCHITECTURE · SALT LAKE COUNTY

20 000 CONCERT HALL

ID	SPACE NAME	NSF (EXISTING)	NSF (PROPOSED)					GSF (WITH FACTOR)	OCC.	UNITS	NOTES
	Auditorium										
26 101	Orchestra floor	11,287	11,287				1.0	11,287	1,830		
26 102	Balcony 1	3,422	3,422				1.0	3,422	400		
26 104	Balcony 2	2,870	2,870				1.0	2,870	296		
26 105	Balcony 3	2,697	2,697				1.0	2,697	292		
26 111	Auditorium SLLs	6,284	6,284				1.0	6,284			
26 121	Plenum under seating	-					1.0	0			As per acoustician
26 122	Reverb chambers	-					1.0	0			As per acoustician
	Stage			*w*	*d*	*h*					
26 251	Concert platform	1,800	2,277				1.0	2,277			proposes permanent 8' extension
26 252	Concert platform assembly area SL	365	365		*existing*		1.0	365			12' minimum clear height
26 252	Concert platform assembly area SR	365	365		*existing*		1.0	365			12' minimum clear height
26 253	Backstage - assembly/uncasing	-	1,300	65	20	12	1.3	1,690			12' minimum clear height
26 257	Camera niches	-									In hall; provide 3
26 271	Stage SLL USR	-	48	6	8		1.3	60			
26 272	Stage SLL USL	-	48	6	8		1.3	60			
26 273	Stage SLL DSR	-	48	6	8		1.3	60			
26 274	Stage SLL DSL	-	48	6	8		1.3	60			In gross
	Understage										
26 505	Forestage lift	-	650	65	10		1.0	650	41	16 sf	Part of platform
26 506	Piano lift	-		15	10		1.2	0			Part of platform
26 551	Storage - house audio mix	-	150	10	15		1.2	180			Adjacent to pit
	Lift machinery pits	-					1.0	0			
	Control rooms			*w*	*d*	*h*					
26 602	Control - light	see 26610	150	15	10		1.4	203			Two consoles/ops
26 603	Control - sound	see 26610	150	15	10		1.4	203			Studio facilities in booth
26 604	Control - stage manager	10	100	10	10		1.4	135			Located adjacent to platform
26 607	Control - subtitle	see 26610	80	8	10		1.4	108			
26 609	Control - audio describer	see 26610	80	8	10		1.4	108			
26 610	Control - recording	125	80	8	10		1.4	108			In hall or remote
26 611	Control room SLL	-									Included in Auditorium SLL
26 621	Viewing room - director/staff	-	80	8	10		1.4	108	8		
26 622	Viewing room - FOH	-	80	8	10		1.4	108	8		Crying babies, latecomers
26 631	Followspot room	-	300	25	12		1.3	390	4	75 sf/spot	Fits 4 followspots
26 632	Followspot SLLs	-	48	6	8		1.3	60			
				wc	*sink*						
26 642	Restroom - followspot - all gender	-	65	1	0.5		1.3	85	1	65 sf/fixture	
26 700	*Services*			*w*	*d*	*h*					
26 701	Dimmer room	-	170			10	1.3	221	10	5 racks	25sf/rack + 45' circulation
26 711	Sound rack room	-	155			10	1.3	202	1	5 racks	25sf/rack + 30' circulation
26 712	Amp rack room	-	155			10	1.3	202	1	5 racks	25sf/rack + 30' circulation
26 713	Broadcast rack room	-	55			10	1.3	72	1	1 racks	25sf/rack + 30' circulation

SUBTOTALS	
NSF (EXISTING)	29,225
NSF (PROPOSED)	33,607
GSF (PROPOSED)	34,637

FRONT OF HOUSE 3

SUMMARY + OBSERVATIONS

The 2016 Plan highlighted that the majority of the lobby and patron services areas are too small, causing significant congestion and wait times for elevators, concessions, and restrooms, and associated safety concerns. To date, attempts to address this situation have provided only short-term fixes that do not address the underlying problems because the venue lacks the square footage to accommodate the required uses for a venue of this size. To address this shortfall, an ideal list of space requirements has been created to match the needs of a 2,768-seat performing arts venue (see Section 7). This plan represents the maximum renovation scope, while the 2016 Plan sets the minimum. The attached pictures from 2023 visually demonstrate the deficiencies in public spaces after a show.

LOBBY SQUARE FOOTAGE COMPARISON

The following list is comprised of single venue buildings with resident companies of similar caliber to the Utah Symphony (with the exception of the Mid-Valley PAC).

MEYERSON SYMPHONY HALL
DALLAS, TX

SEATS: 2,062
LOBBY AREA: 22.53 SF / SEAT

DAVID GEFFEN HALL
NEW YORK CITY, NY

SEATS: 2,200
LOBBY AREA: 19.49 SF / SEAT

WALT DISNEY CONCERT HALL
LOS ANGELES, CA

SEATS: 2,265
LOBBY AREA: 17.59 SF / SEAT

ORCHESTRA HALL
MINNEAPOLIS, MN

SEATS: 2,085
LOBBY AREA: 17.09 SF / SEAT

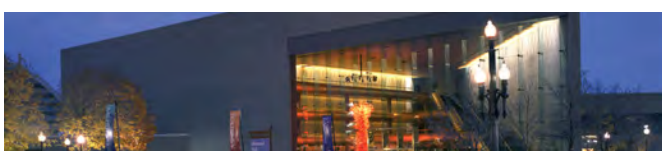
MID-VALLEY PERFORMING ARTS CENTER
TAYLORSVILLE, UT

SEATS: 650
LOBBY AREA: 16.00 SF / SEAT

15.0 SF / SEAT IS THE TARGET FOR MODERN PERFORMANCE HALL DESIGN

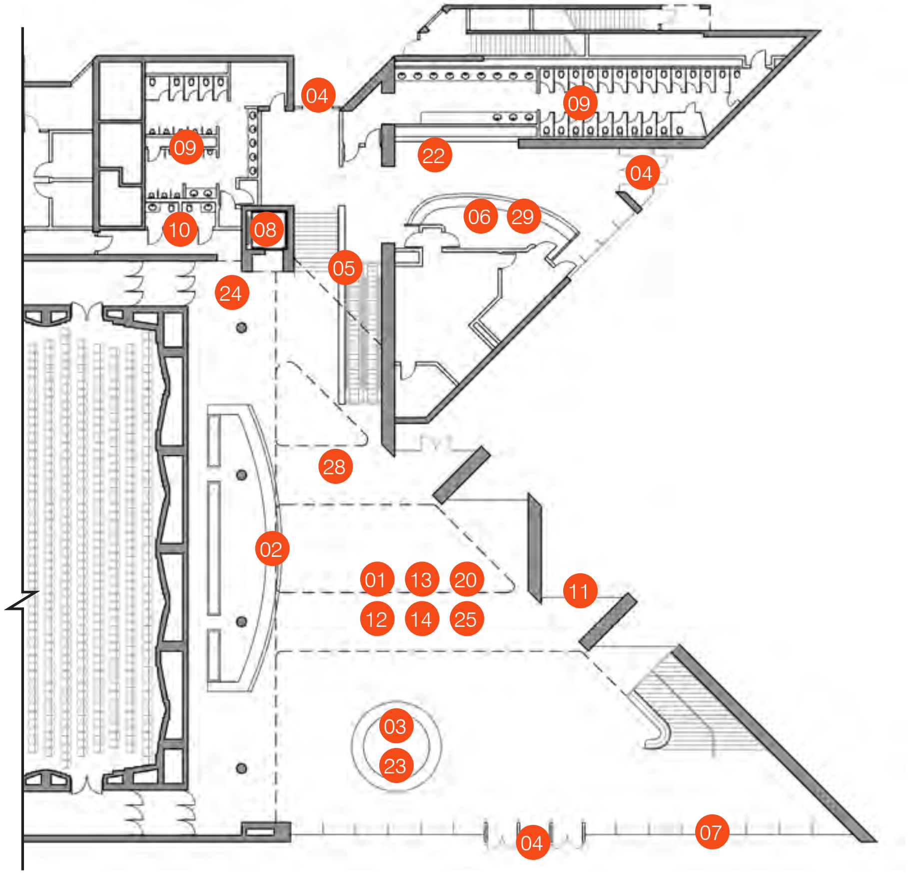
STRATHMORE CONCERT HALL
BETHESDA, MD

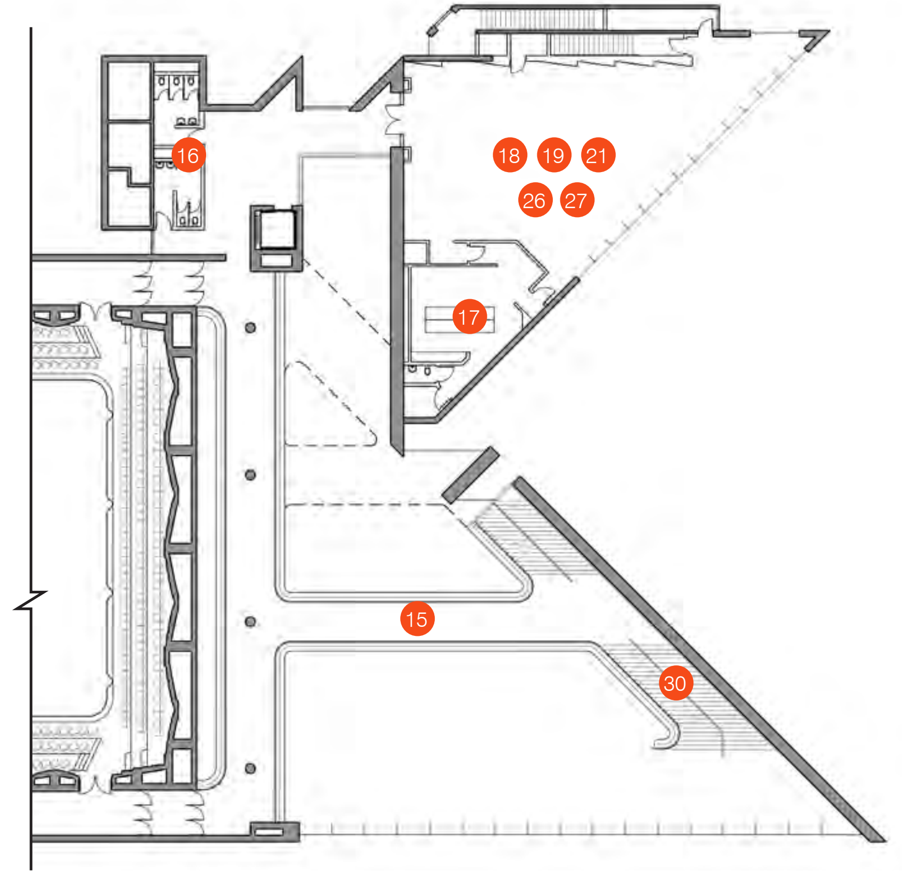
SEATS: 1,976
LOBBY AREA: 10.75 SF / SEAT



MAURICE ABRAVANEL HALL
SALT LAKE CITY, UT

SEATS: 2,788
LOBBY AREA: 5.38 SF / SEAT





OBSERVATIONS:	RECOMMENDATIONS:
1. Current lobby space is too small. Abravanel Hall has approximately 13,700 square feet of lobby space dispersed across four levels (orchestra, 1st tier, 2nd tier, and 3rd tier) to serve the 2,800-seat theater; or approximately five square feet per person.	• Increase the size of the lobby. Current standards for public lobbies in a performing arts facility suggest a target square footage of 15 square feet per seat.
2. The location of the coat check and concessions counter causes queuing to extend through the most open portion of the lobby. Bifurcating the lobby into two halves and restricting flow during pre- and post-show gatherings as well as during intermission. Because of the configuration of the counters, only two lines can be formed.	• Move concessions and coat check to dedicated space within an expanded lobby and situated so queuing doesn't conflict with patron flow. Concessions should have dedicated ice machine.
3. The Chihuly elicits mixed feelings amongst patrons and staff alike. Regardless, its location takes up precious space and further disrupts patron flow.	• Consideration should be given to hanging the Chihuly above head height. See further discussion on public art below.

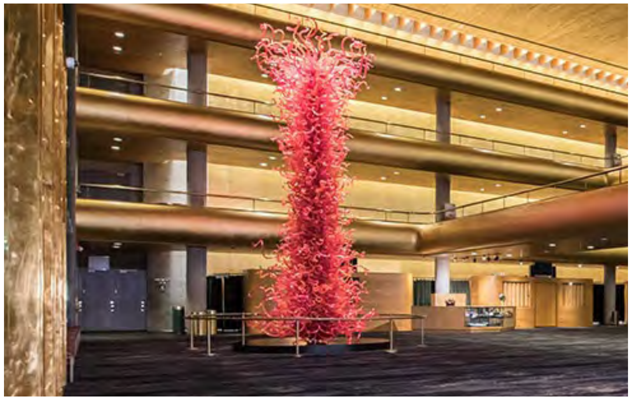
OBSERVATIONS (continued):	RECOMMENDATIONS (continued):
4. Lobby entrances do not have vestibules or places to allow for queuing during poor weather. Three separate entrances are also hard to secure.	• The plaza entry doors are seen as integral to the iconic nature of the building's exterior and may be required to remain without a vestibule. All other entrances should include a vestibule and provide adequate space for ticketing to occur while staying protected from the weather.
5. The lobby is split into a lower and upper portion. The lower portion has restrooms and the ticket office, the upper portion includes coat check, concessions, and general gathering spaces.	• Any proposed lobby expansion should allow the orchestra level lobby to be fully functioning on a single level.
6. The ticket office is oversized for current needs and located in a place that is confusing for patrons.	• Ticket office support space is still needed but could potentially be relocated to a space within the administrative offices. Only four windows are needed at the formal ticket office for patron use and location should be made easier to find.
7. The feature glazing on the east facade was the latest technology when it was constructed. At this time, the glazing is extremely expensive to fix or replace if there is any breakage, and the existing glazing doesn't perform as well as modern glazing systems. Bird strikes are also frequent.	• Fully replace the existing glazing with high-performance double- or triple-pane IGUs that incorporate "bird-safe" glazing. Shading the glass is not advisable as it changes the iconic nature of the building. The design team should explore options to make the glass "bird-Safe." Consider UV protection for the internal finishes like carpet and benches, due to high morning temperatures inside the lobby.
8. There is a single elevator to service all levels of the building in the front of house. The elevator queues extend into the main orchestra lobby at level one.	• At a minimum, a second elevator should be provided. Ideally, a central bank of elevators should include three cabs, or there should be two banks servicing the left and right side of the Hall respectively, each with two cabs each.
9. Restrooms are outdated and undersized and the lighting is inadequate, causing the space to be very dark. The current fixture count does not adequately serve the venue during events. The entrances to each cluster are in the same small area, leading to congestion during intermissions.	• Bring fixture count up to one fixture in the restrooms per 25 seats in the main Hall. Provide "in" door and "out" door if possible.
10. Family restrooms are too small to serve that function. Location is different from remaining restrooms.	• Increase count of family restrooms to three, each with adequate space for that use. Provide a separate lactation room.
11. Doors malfunction when the humidity in the room reaches certain levels.	• Replace doors and upgrade security features (see Security and Access narrative in subsequent sections).
12. Lobby is not evenly lit, and the controls are located in back of house. Ability to customize the space to the event is difficult, with projectors having to be set up in ad-hoc locations.	• Upgrade lobby lighting and provide dedicated room for LED controls/drivers and front-of-house sound and projection racks. Identify and provide dedicated zones for digital and projection capabilities.
13. There is minimal digital signage in the lobby and a temporary projector is set up to project signage content on to a brick wall for special events.	• Provide digital signage at strategic locations and infrastructure for temporary equipment. Provide ample signage above head height so it can be seen during an event with a full lobby. Digital signage is preferred to allow for bi-lingual display.
14. Storage that is easily accessible to the lobby is limited.	• Provide new storage spaces properly sized for supporting events in the lobby.
15. No concessions are provided on tier-level lobbies.	• Tier-level lobby/balconies should be expanded into new lobby addition. Consider providing dedicated space for concessions on the First Tier, with optional locations for mobile concession stands on Second and Third Tiers.

OBSERVATIONS (continued):	RECOMMENDATIONS (continued):
16. Restrooms are undersized for number of seats at First, Second, and Third Tier levels.	• Expand restrooms to provide adequate fixture counts at the one fixture per 25 seats target.
17. Current warming kitchen doubles as storage.	• Reduce size of warming kitchen so it is appropriately sized for the types of events that occur in the First Tier Room and provide more storage.
18. AV capabilities of First Tier Room limit the types of events that can occur in this space.	• Upgrade AV and lighting in First Tier Room. This room should be adaptable for donor events, educational presentations, and pre- or post-concert receptions. See further discussion in Building Systems narratives for specific upgrades.
19. The First Tier Room is too small to house pre-concert lectures. The goal is to have up to 300 people attending such an event. Additionally, the First Tier Room is not placed in an ideal location for patron access and visibility.	• New event space should be considered that would accommodate larger events of up to 300 people in a lecture-style seating configuration, or 200 people in a gala-style event. This new event space should have a separate entrance that also serves the First Tier Room so the room can be booked simultaneously with an event in the main Hall. A separate entrance would also allow for alcohol service in these other events.
20. Concierge space happens at a table in the lobby depending on the event.	• Provide dedicated concierge desk that also provides other patron services.
21. Views out of the building are just as important as the views into the building.	• Any addition that is made needs to either preserve the views out to the city or enhance them.
22. Water fountains are inadequate, poorly located, and don't have bottle fill stations.	• Provide new water fountains with bottle fill stations.
23. Beyond the Chihuly artwork, there are few opportunities for public art in the building.	• Provide designated locations for public art, including lighting and structural needs. A good opportunity would be to bring UMOCA in for collaboration on the artwork.
24. Lobby lighting controls are located in three separate locations.	• Consolidate all front-of-house lighting controls into a single location.
25. Lobby loudspeaker coverage for paging, announcements, chime, etc. is not sufficient for the space.	• Provide distributed audio system that provides adequate intelligibility and can be easily controlled via a touchscreen from the lobby. This system could also have the ability to connect a microphone for small events in the lobby.
26. Access to the First Tier Room is only through the main lobby and can be confusing for patrons.	• Explore opportunities to provide dedicated access to the First Tier Room via an exterior entrance; this approach may offer the additional benefit of allowing alcohol to be served in the room.
27. Views from the First Tier Room are well loved.	• Look for ways of maintaining and enhancing connection to view and the city at large from the interior spaces of the building.
28. There is no room for responding to medical emergencies.	• Provide private medical room; see space summary sheet below.
29. House Manager office is located in back of house.	• Provide dedicated space for House Manager and an usher lounge; see space summary sheet below.
30. The stairs in the main lobby are awkward to use with treads not parallel to the direction of travel.	• Refer to Structural Systems narrative regarding the lobby stairs in the Building Systems section below.

PUBLIC ART STRATEGIES

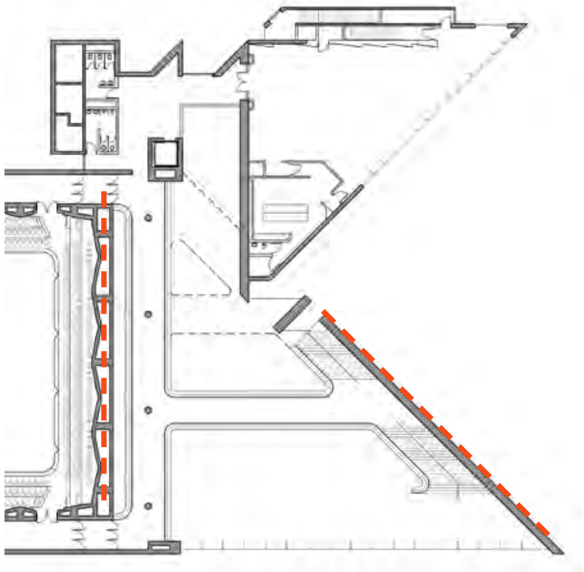
Salt Lake County's robust "Art in Public Places" program oversees the acquisition and curation of public art in County-owned facilities across the valley. For any new County facility construction or renovation project, one percent (1%) of the overall project budget is required to go towards the acquisition and display of public art on site. While Abravanel Hall contains *Olympic Tower*, a sculpture by Dale Chihuly (a piece that has become synonymous with the Hall itself), the prominence of the venue lends itself to many other art opportunities.

OLYMPIC TOWER BY DALE CHIHULY:



Olympic Tower provides a significant focal point for the Abravanel Hall lobby that orients patrons while simultaneously interfering with patron flow during an event, and it restricts the ability to rent the lobby for larger social events, due to the square footage it takes up. There is no agreement in place requiring the sculpture stay at Abravanel Hall; however, removing it from the site would almost certainly be unpopular with the community at large. During the design phases, new locations should be identified that maintain the sculpture's prominence, and ways to solve the patron flow issues around it should be studied. Hanging the piece may be an option; however, it is currently on a long-term lease from the Utah Athletics Foundation and any modification to how it is displayed will need to be approved by that organization. The lighting for the sculpture dates to 2002 and is not energy efficient. It is anticipated that new lighting will be designed as part of the facility renovation.

ADDITIONAL INTERIOR OPPORTUNITIES:
Other locations for artwork should prioritize public visibility and be of a scale appropriate to the venue. Other possible interior locations for new art would be the gold-leafed wall spanning three stories at the south of the main lobby and along the angled brick exterior wall at the north boundary of the lobby.



SITE OPPORTUNITIES:
The public plaza outside of the venue is one of the most prominent outdoor public spaces in the city, and represents a prime opportunity to locate an iconic work of public art. Art in the plaza should serve to reinforce the notion of an arts campus, with references to the activities occurring within Abravanel Hall and the Utah Museum of Contemporary Art. During the community outreach efforts, Chicago's Millennial Plaza and *Cloud Gate* (or the Bean) by Anish Kapoor was frequently cited as a successful example of outdoor public artwork both in scale and community engagement.

Additionally, Abravanel Hall sits on what used to be known as Japantown, the primary settlement of Japanese immigrants who came to Utah prior to World War Two. Preference should be given to artwork that is able to both enhance the notion of an arts campus, but also speak to the historic realities of the site.

Further coordination with the Art in Public Places program is needed to select and/or commission a work specific to this site.

SIGNAGE

Implementation of digital signage at Abravanel Hall will require careful consideration to enhance the audience experience without disrupting the artistic integrity of the venue or performances. The Project Team believes that digital signage can be successfully integrated into the venue design and operations, enhancing the overall experience for attendees while respecting the artistic and cultural context of the performances.

Best practices for using digital signage in this context include:

Design + Implementation

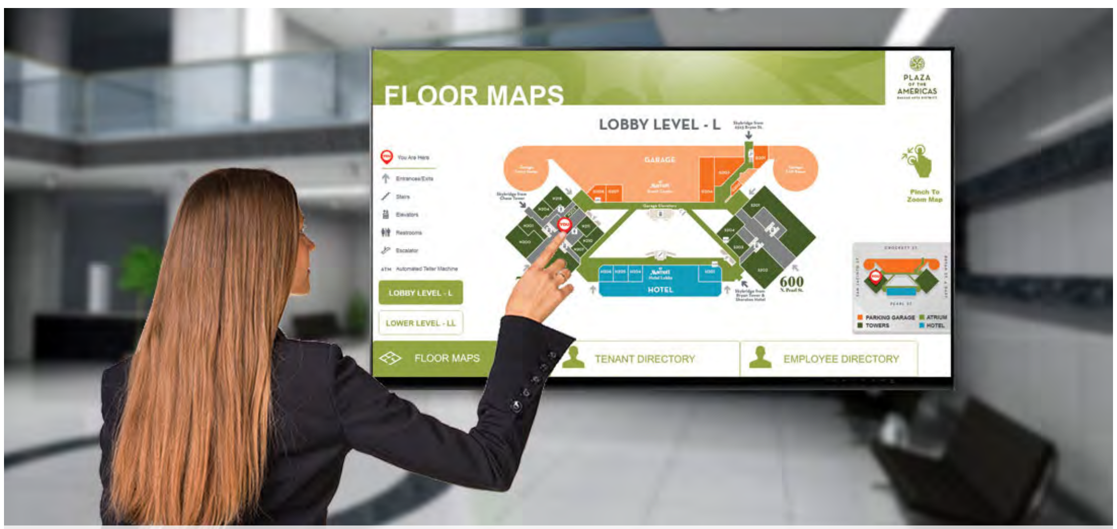
- Placement: Strategically place digital signage throughout the venue to minimize distractions. Avoid placing screens in direct sightlines of the stage or performers inside of the auditorium.
- Minimalist Design: Use a clean and minimalist design for digital signage to maintain a sense of sophistication and elegance in the concert hall. Avoid flashy animations or excessive graphics.
- Mobile Integration: Consider integrating mobile apps or QR codes with digital signage to allow attendees to access additional content or interact with the performances.
- Quality Screens: Invest in high-quality displays that provide sharp, clear images. The screen size and resolution should be chosen to suit the viewing distance.
- Sound Control: Ensure that any audio accompanying the digital signage is properly controlled to avoid disturbing the performance. Use headphones or localized sound if necessary.
- Content Platform: Most digital signage systems utilize a cloud-based platform to manage signage content and distribute it to display locations. These platforms typically operate on a Software as a Service model, so it's important to consider both the features and ongoing costs when making a selection.
- Network Infrastructure: Most digital signage systems utilize end-point devices at displays that require a connection to your network. Typically, a hard-wired connection is installed behind the display. In addition, any wireless interaction between the signage system and user devices will require a way for your wireless network to communicate with the wired signage devices. Coordination with the IT department will be key for a successful implementation.
- Test and Rehearse: Before implementing digital signage, thoroughly test and rehearse its use to identify and address any potential issues that may arise during performances.
- Staff Training: Train venue staff to manage and operate the digital signage effectively, especially in case of technical difficulties during events.

Content + Operations

- Accessibility: Ensure that the digital signage is accessible to all attendees, including those with disabilities. Use high-contrast text and consider implementing text-to-speech functionality.
- Wayfinding: Provide wayfinding information to help attendees find their seats, restrooms, and concession areas. This consideration can improve the overall patron experience.
- Purposeful Content: Ensure that the content displayed on digital signage serves a specific purpose, such as providing event information, announcements, or enhancing the event experience.
- Event Information: Display key event information, such as performance event schedules, artist bios, and program notes. This information can help enhance the audience's understanding of the performance.
- Real-Time Updates: Ensure that the content is up-to-date, including real-time information about intermissions, artist changes, and any other relevant updates.
- Content Rotation: Avoid static content and periodically update the displayed information to keep it fresh and engaging.
- Audience Engagement: Use interactive elements on the digital signage, such as live polls, to engage the audience and create a sense of participation.
- Sponsorship and Advertising: Carefully incorporate sponsor messages or advertising in a way that is tasteful and does not detract from the concert experience.
- Feedback and Adaptation: Collect feedback from patrons and staff to continually refine and adapt the digital signage strategy to better meet the needs of the audience. It is also important to regularly train staff on the system and any upgrades.

INTERACTIVE SIGNAGE FOR EDUCATION AND PROGRAMMING INFORMATION

APP BASED AR WAYFINDING



INTERACTIVE BUILDING MAPS

DATA COLLECTION AND ANALYTICS TO STUDY PATRON INTERACTION WITH FRONT-OF-HOUSE SPACES

10 000	PUBLIC AREAS										
ID	SPACE NAME	NSF (EXISTING)	NSF (PROPOSED)					GSF (WITH FACTOR)	OCC.	UNITS	NOTES
	Lobbies										
11 101	Weather vestibules	71	524							0.2 sf/person	All performance space occup. included
11 102	Lobby - level 1 - orchestra	6,938	24,900				1.3	32,370	1,660	15 sf/person	All performance space occup. included
11 103	Lobby - level 2 - 1st tier	2,500	6,000				1.3	7,800	400	15 sf/person	All performance space occup. included
11 104	Lobby - level 3 - 2nd tier	2,209	4,440				1.3	5,772	296	15 sf/person	All performance space occup. included
11 105	Lobby - level 4 - 3rd tier	2,026	3,930				1.1	4,323	262	15 sf/person	All performance space occup. included
11 106	Event Space Lobby	0	200				1.3	260			elevator lobby for upper event spaces
	Box office										
11 201	Sales windows	288	200				1.2	240	4	50 sf/window	
11 202	Workroom - box office	438	192				1.2	230	4	48 sf/person	
11 203	Office - USUO	107	100				1.2	120	1	100 sf	Does not need to be next to sales window
11 204	Office - SLCo A & C	-	100				1.2	120	1	100 sf	Does not need to be next to sales window
11 206	Storage - box office	161	160				1.2	192			
11 207	Public space - box office	806	500				1.2	600			
11 219	Restroom - box office staff	-	60				1.2	72	1	60 sf/fixture	Can be shared with public restrooms
	Customer services										
11 231	Office - house manager	-	110				1.2 a		2	55 sf	
11 233	Customer service counter	-									mobile station in lobby
11 234	Coat check/IR system distribution	300	381				1.2	457	692	0.55 sf	For 25% of audience
11 237	First aid room with restroom	-	125				1.2	150	1	125 sf	
	Concessions			w	d	ln ft					
11 301	Concessions - Level 1	604	972	4	7.5	129.5	1.2	1,166	32	30 sf	W min = 3' for bev only; 5' for full service
11 302	Concessions - Level 2	-	324	4	7.5	43	1.2	389	11	30 sf	W min = 3' for bev only; 5' for full service
11 303	Concessions - Level 3	-	0				1.2	0	0	30 sf	Mobile station, included in lobby SF
11 304	Concessions - Level 4	-	0				1.2	0	0	30 sf	Mobile station, included in lobby SF
11 311	Storage - concessions - Level 1	-	146				1.2	175		0.15 of concessions	
11 312	Storage - concessions - Level 2	-	49				1.2	59		0.15 of concessions	
11 321	Cool storage - concessions - Level 1	-	49				1.2	59		0.05 of concessions	
11 322	Cool storage - concessions - Level 2	-	49				1.2	59		0.05 of concessions	
11 325	Office - concessions manager	-	100				1.2	120	1	100 sf	
	Restrooms			WC	Sink	Urinal					Occup = Fem 60%, Male 40%; 1 fxtr / 25 seats
11 411	Restroom - level 1 - men	588	600	10	12	14	1.4	840		25 sf/fixture	
11 412	Restroom - level 1 - women	1,005	975	39	22	0	1.4	1,365		25 sf/fixture	
11 414	Restroom - level 1 - all gender	64	65	1	1	0	1.2	78		65 sf/fixture	Wheelchair accessible, family assist
11 415	Restroom - level 1 - all gender	64	65	1	1	0	1.2	78		65 sf/fixture	Wheelchair accessible, family assist
11 416	Restroom - level 1 - all gender	64	65	1	1	0	1.2	78		65 sf/fixture	Wheelchair accessible, family assist
11 417	Lactation room	-	65		1		1.2	78			
11 421	Restroom - level 2 - men	129	150	2	4	4	1.4	210		25 sf/fixture	
11 422	Restroom - level 2 - women	139	250	10	8	0	1.4	350		25 sf/fixture	
11 424	Restroom - level 2 - all gender	-	65	1	1	0	1.2	78		65 sf/fixture	Wheelchair accessible, family assist
11 425	Restroom - level 2 - all gender	-	65	1	1	0	1.2	78		65 sf/fixture	Wheelchair accessible, family assist
11 431	Restroom - level 3 - men	129	125	2	3	3	1.4	175		25 sf/fixture	
11 432	Restroom - level 3 - women	139	200	8	6	0	1.4	280		25 sf/fixture	
11 434	Restroom - level 3 - all gender	-	65	1	1	0	1.2	78		65 sf/fixture	Wheelchair accessible, family assist
11 435	Restroom - level 3 - all gender	-	65	1	1	0	1.2	78		65 sf/fixture	Wheelchair accessible, family assist
11 441	Restroom - level 4 - men	129	125	2	3	3	1.4	175		25 sf/fixture	
11 442	Restroom - level 4 - women	139	200	8	6	0	1.4	280		25 sf/fixture	
11 444	Restroom - level 4 - all gender	-	65	1	1		1.2	78		65 sf/fixture	Wheelchair accessible, family assist
11 445	Restroom - level 4 - all gender	-	65	1	1		1.2	78		65 sf/fixture	Wheelchair accessible, family assist
11 491	Public water fountains										In gross; adjacent to each restroom

10 000	PUBLIC AREAS										
ID	SPACE NAME	NSF (EXISTING)	NSF (PROPOSED)					GSF (WITH FACTOR)	OCC.	UNITS	NOTES
	First Tier Room (Donor's Lounge)			WC	Sink	Urinal					
11 511	First Tier Room	2,255	1,600				1.4	2,240	141	17 sf/person	
11 512	Pantry/bar - donors' lounge	-	400				1.4	560		25% of donor's lounge	included in first tier room GSF
11 513	Service area - donors' lounge	-	240				1.4	336		15% of donor's lounge	included in first tier room GSF
11 514	Coat closet - donors' lounge	-	70				1.4	98		100% of occupancy	
11 515	Storage - donors' lounge	135	135				1.2	135		10% of donor's lounge	25 sf minimum
11 516	Restroom - donors' lounge - All gender	78	65	1	1		1.2	105		65 sf/fixture	can be shared with level 2 restrooms
11 517	Restroom - donors' lounge - All gender	78	65	1	1		1.2	70		65 sf/fixture	can be shared with level 2 restrooms
11 518	Warming Kitchen	618	500				1.2	600			
11 519	Restroom	25	25	1	1		1.2	25		25 sf/fixture	
11 520	Kitchen Storage	50	225				1.2	225			
	Event Space			WC	Sink	Urinal					
11 530	Event Space	-	3,000				1.4	4,200	200	15 sf/person	
11 531	Warming Kitchen		500				1.4	700			
11 532	Pre-Function Space	-	1,800				1.4	2,520	200	9 sf/person	
11 533	Event Storage	-	600				1.2	720			
11 534	Restroom - event space - men	-	75	1	2	2	1.4	105		25 sf/fixture	
11 535	Restroom - event space - women	-	100	4	3		1.4	140		25 sf/fixture	
11 536	Restroom - event space - all gender	-	65	1	1		1.2	78		65 sf/fixture	
	Staff Areas			WC	Sink	Urinal					
11 806	Break room - FOH staff	-	500				1.2	600	50	10 sf/person	lockers for staff with small sitting area
11 807	Restroom - FOH staff - All gender	-	80	1	1		1.4	112	24	40 sf/fixture	Changing room/restroom
11 808	Restroom - FOH staff - All gender	-	80	1	1		1.4	112	24	40 sf/fixture	Changing room/restroom
11 811	Storage - FOH operations	191	800				1.2	960		1% total lobby	
11 814	Storage - program dispersal - level 1	-	25				1.1	28	1	25 sf	
11 815	Storage - program dispersal - level 2	-	25				1.1	28	1	25 sf	
11 816	Storage - program dispersal - level 3	-	25				1.1	28	1	25 sf	
11 817	Storage - program dispersal - level 4	-	25				1.1	28	1	25 sf	
11 821	Janitors' closet - level 1	37	60				1.1	66	1	60 sf	With mop sink
11 822	Janitors' closet - level 2	-	60				1.1	66	1	60 sf	With mop sink
11 823	Janitors' closet - level 3	-	60				1.1	66	1	60 sf	With mop sink
11 824	Janitors' closet - level 4	-	60				1.1	66	1	60 sf	With mop sink
11 901	LED driver room	-	95				1.2	114	1	2 racks	25sf/rack + 45' circulation
11 911	Audio rack room - lobby	-	55				1.2	66	1	1 racks	25sf/rack + 30' circulation

SUBTOTALS	
NSF (EXISTING)	22,504
NSF (PROPOSED)	58,300
GSF (PROPOSED)	74,382

SPARANO+MOONEY ARCHITECTURE

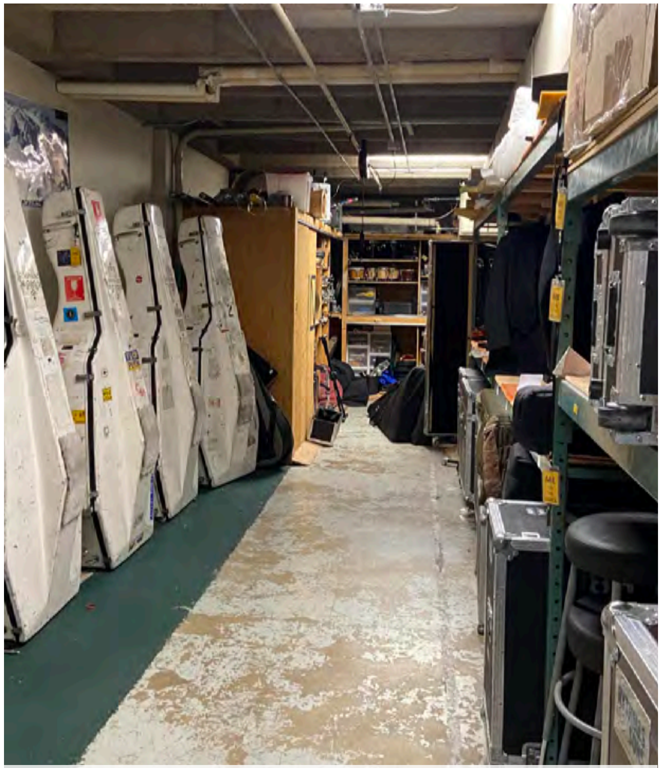
4 BACK OF HOUSE

SUMMARY + OBSERVATIONS

Since its inception, Abravanel Hall has seen significant growth and diversification in its operations. However, the backstage areas, while functional, are too small and inefficient for current needs and offer no room for future expansion. Moreover, the layout and frequent level changes make it challenging to move equipment around, especially for staff or artists with mobility issues.

To address these issues, the demolition of and major renovations to the back-of-house spaces is required. While previous plans considered filling in voids around the loading dock and adding an additional level on top of the existing back-of-house area, those recommendations do not adequately solve the flow issues or load-in and load-out problems. It's crucial to address the dangerous slopes and loading challenges to attract larger and more varied shows. While any expansion would help, this study recommends completely demolishing and rebuilding the backstage areas. The space requirements outlined in Section 7 of this report are based on site visits, stakeholder input, and discussions with Salt Lake County, Utah Symphony, and other stakeholders during this planning process.

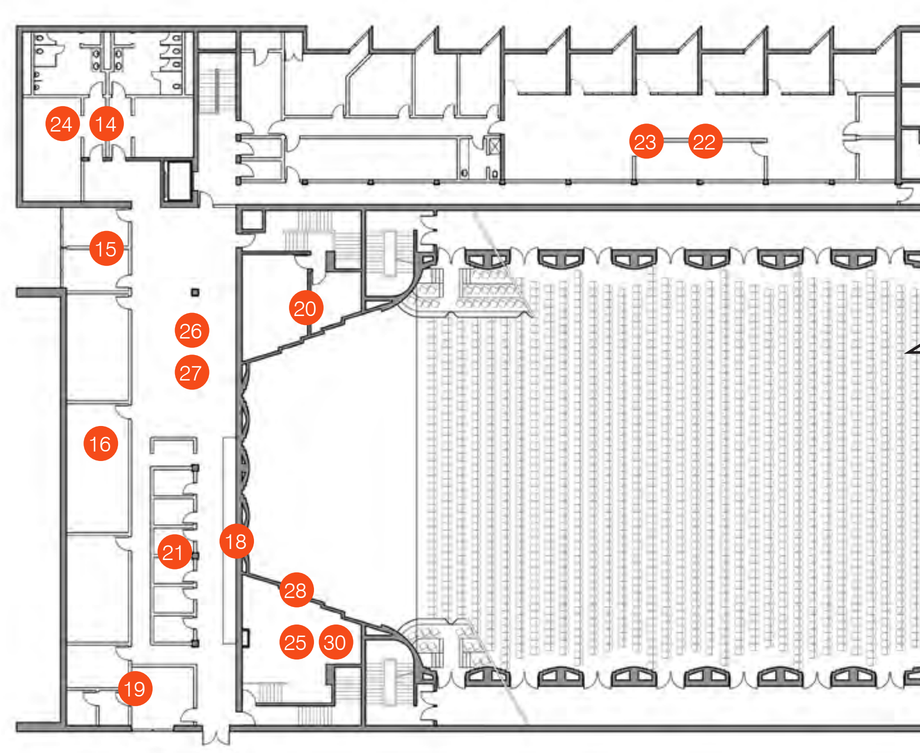

NON-CODE-COMPLIANT FLOOR SLOPES


INSTRUMENT STORAGE


MUSIC LIBRARY


PERFORMER LOUNGE

SPARANO+MOONEY ARCHITECTURE



OBSERVATIONS:	RECOMMENDATIONS:
1. The loading dock is too small, and an additional dock is needed to attract larger shows to the venue. A true 53' trailer cannot be left in the loading dock because it sticks out of building. Filling in the loading dock to be even with the second loading dock addition would not provide enough space to leave a 53' long trailer.	• A reconfigured loading dock should include a motorized lift at minimum. Refer to Loading sub-section below for further discussion on loading configuration.
2. The second loading dock doesn't allow for a truck of any size to remain longer than load-in.	• Refer to Loading sub-section below.
3. The holding and receiving area is part of the back-of-house circulation patterns and has no lockable component.	• Provide dedicated space for shipping and receiving in future renovation; see space summary at the end of this section.
4. The back-of-house area is riddled with variable level changes. Some of these level changes are "warped" concrete slabs that have changing cross-slopes and are steeper than what is allowable under current code.	• If a full demo and rebuild is not undertaken then localized portions of concrete floors need to be demolished and rebuilt with code-compliant slopes.

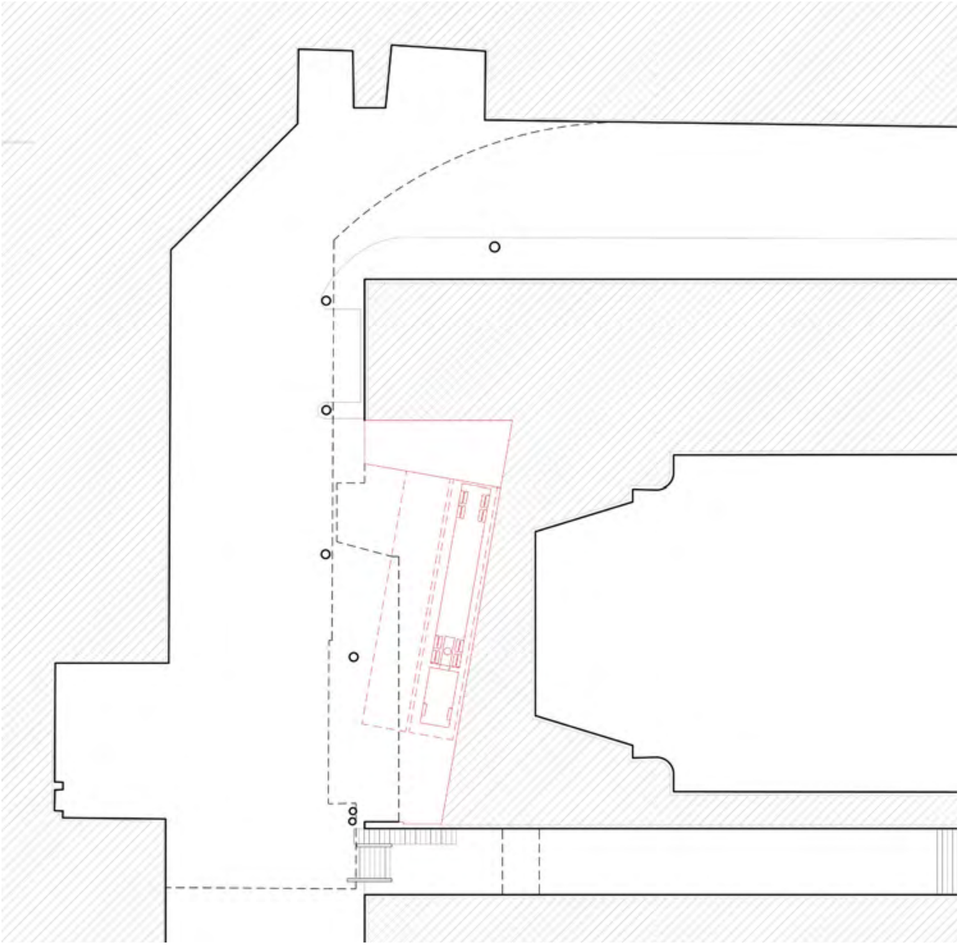
OBSERVATIONS (continued):	RECOMMENDATIONS (continued):
5. Instrument storage is severely undersized for the Resident Symphony needs. In addition, the storage solutions within them are ad-hoc and there are exposed pipes in the space.	• Provide a space sized for Resident company needs in future renovation; see space summary at the end of this section. Future space should not have exposed water pipes.
6. Ancillary storage spaces are undersized.	• Provide adequate storage space per space summary below.
7. Piano storage does not have a clear floor path to stage.	• Provide flush thresholds at all points along piano path of travel.
8. Production Manager's office is ideally located but is cramped and tucked in under a stair in what used to be a storage room. Other production staff offices are scattered throughout the building and not centrally located.	• Provide adequate space for an office ideally located close to the stage. If the location must be remote, provide a workstation next to stage for mobile work.
9. Tool storage and electrical workshops are accessed via a warped concrete slab that makes it untenable to move carts in and out of the space and is dangerous for pedestrian traffic.	• Fix concrete slabs as indicated in observation four.
10. SLCo has commissioned a study to separate Abravanel Hall's HVAC from the UMOCA and Salt Palace buildings. Electrical and mechanical rooms will need various related upgrades.	• Refer to HVAC study; accommodating those report recommendations will require additional mechanical space for new equipment.
11. The back-of-house elevator is slow moving and undersized to act as a freight elevator. In addition, there is no stop in the mechanical/basement level.	• A full freight elevator with ease of access to loading area should be provided as allowable by extent of renovation.
12. Marble thresholds into the Hall work acoustically but make it difficult to move heavy equipment or instruments onto the stage.	• Provide flush thresholds with acoustic door bottoms and gasketing to mitigate sound transfer as per acoustician.
13. There is no accessible path to the stage from the back-of-house performer spaces due to the extensive ramps backstage.	• Fix concrete slabs as indicated in observation four.
14. Performer locker rooms are undersized and unbalanced. Lockers are not deep enough or wide enough for convenient use. Finishes feel outdated and dreary.	• Provide a more balanced dressing area with gender-neutral options at a minimum. Consider breaking the dressing area into cells that can be changed to accommodate male / female / gender-neutral options as required by the overall user group/s.
15. A+C offices are not centrally located in facility and ideally would not be located in the heart of the performer accommodations.	• Consolidate County personnel offices and provide additional space as outlined in the space summary list.
16. There is not an adequate quiet room for performers to utilize before and after a show.	• Provide a dedicated small room for quiet contemplation and stretching before and after performances.
17. Stage lift pump pipes can be heard throughout back of house.	• Acoustically-isolate pumps; ideally locate them under stage area during audience chamber floor reconfiguration.
18. Small instrument lockers are located in the performer's lounge which makes for a chaotic experience during shows.	• Provide dedicated storage space for instruments of all sizes.
19. There are not enough star dressing rooms for Resident company needs and guest artists. Currently the conductor's suite is shared as needed.	• Increase the number of star dressing rooms as per space summary at the end of this section. Provide adequate space in one or more of them for a piano. Provide dressing rooms with ADA-compliant shower, sink, and toilet.
20. Fire alarms cannot be heard in offices located above stage left.	• Ensure all spaces are adequately covered by strobes in renovation.

OBSERVATIONS (continued):	RECOMMENDATIONS (continued):
21. There are not enough practice rooms. The existing rooms are small and all the same size.	• Provide a variety of practice room sizes. A room large enough for a chorus to set-up and rehearse in would be ideal.
22. Resident company offices are undersized for current needs.	• Provide additional administrative space for both the Resident company and A+C building staff. Refer to administrative space summary at the end of this section.
23. There is no dedicated space for visiting company staff offices.	• See above recommendation.
24. There are no restrooms located close to the stage and the existing restrooms in the artist lounge are too small to serve the Resident company, and other larger clients.	• Provide adequate restroom facilities next to dressing rooms and additional stage restroom facilities directly accessible from stage.
25. The music library is nicely located in proximity to the stage but is too small to service an orchestra of this size and it is difficult to locate.	• Increase the size of the music library as per space summary below. Maintain relationship to stage if possible (but not necessary).
26. Back-of-house artist lounge is adequately sized but functions as the hub of activity during events, including instrument uncasing, tuning, and other activities.	• Provide dedicated space for ancillary activities currently occurring in artist lounge as per space summary sheet below.
27. There is no room large enough in which a chorus can warm-up or assemble before a show.	• Provide a choral room as per space summary below.
28. There are no changing rooms located close to the stage to allow for quick wardrobe changes for performers and speakers.	• Locate, at minimum, one star dressing room easily accessible from the stage.
29. Stage door and security entrance feels disconnected from the artist spaces.	• Move up a level if possible, to provide a more direct connection to artist spaces.
30. Old organ loft is currently used for forgotten drawings storage.	• Re-evaluate access to these upper level spaces and provide access points beyond the exit stairs as possible.
31. Security desk is far away from the main public areas.	• Consider moving security desk to area near ticket office.

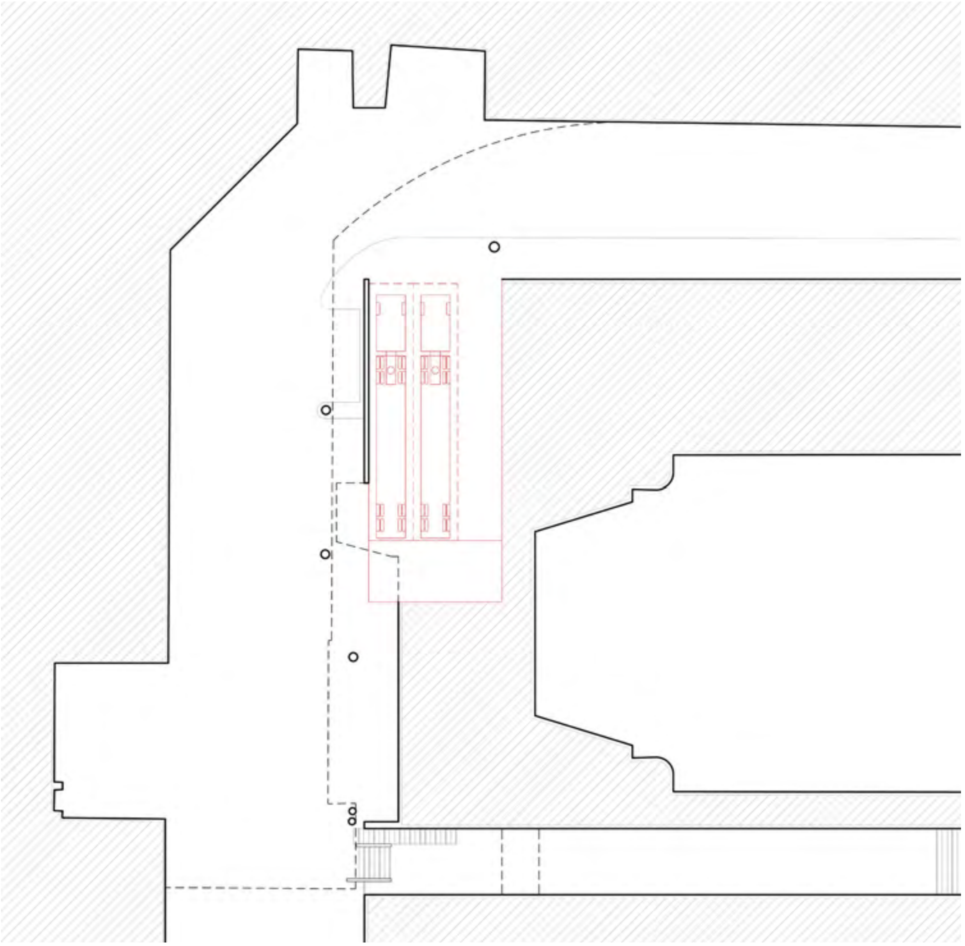
LOADING

The current loading dock prohibits the ability of shows with larger technical needs from renting Abravanel Hall. If a full demo and rebuild of the back-of-house spaces is contemplated, an opportunity exists to rework the loading area to accommodate a loading dock with two full 53' slips. The studies below represent two options that will require further analysis from a traffic engineer to validate.

Option 1: Take the current second loading dock and move it into the building. All displaced support spaces move up a level. This option requires only the demo of existing loading docks and storage spaces; the existing elevator and stage door may remain. Truck circulation paths will match the current situation.



Option 2: Trucks load in from the west. This option requires a full demo of the stage door and back-of-house elevator. While the previous options may be feasible without a full demolition of the back portion of the building, this option most likely will require it.



30 000	STAGE SUPPORT											
ID	SPACE NAME	NSF (PROPOSED)					GSF (WITH FACTOR)	GSF (EXISTING)	OCC.		UNITS	NOTES
			w	d	h							
36 101	Scene dock/staging area	813			30	1.40	1,138	583		0.25	of concert platform	12 ft clear height
	Workshops		w	d	h							
36 117	Workshop - sound submix	250	10	25		1.30	325	106				
36 120	Workshop - instruments	300	10	30		1.20	360	136				
	Storage		w	d	h							
36 131	Storage - rigging	150	10	15		1.20	180	136				
36 133	Storage - lighting	300	10	30		1.20	360	115				
36 134	Storage - sound	350	10	35		1.20	420	-				
36 135	Storage - general stage	300	10	30		1.20	360	368				
36 136	Storage - roadcases	150	10	15		1.20	180	441				
36 137	Storage - piano	200				1.20	240	163	2	2	# of pianos	100sf per piano
36 138	Storage - musical instruments	488				1.20	585	142		0.15	of concert platform	
36 145	Storage - lighting rack	300	10	30		1.20	360	-				
36 148	Storage - trunks	400	20	20		1.20	480	-				
34 139	Storage - platforms/chairs	600	15	40		1.20	720	163				
36 149	Storage - bass and cello	400	20	20		1.20	480	1,692				
36 150	Storage - percussion	400	20	20		1.20	480	-				
36 152	Storage - onstage music	300	20	15		1.20	360	-				
36 153	Storage- harp tuning storage	300	20	15								
	Stage offices											
36 201	Office - production manager	100				1.25	125	116	2	50	sf/person	
36 202	Office - technical director	100				1.25	125	142	2	50	sf/person	
36 203	Office - stage mgmt.	150				1.25	188	132	3	50	sf/person	
36 204	Office - symphony personnel mgr	100				1.25	125	-	2	50	sf/person	
36 211	Office - visiting	100				1.25	125	-	2	50	sf/person	
36 212	Office - visiting	100				1.25	125	-	2	50	sf/person	
36 222	Office - operations backstage	100				1.25	125	-	2	50	sf/person	
	Crew rooms											
36 301	Ready room - crew	136				1.30	146	-	8	17	sf/person	Close to stage, includes vending w/ lockers
36 321	Vending	50				1.20	120	-	2	2	# of machines	25sf per machine
	Restrooms		WC	Sink	Shower							
36 901	Restroom - men (crew)	280	4	2	2	1.25	350	-	4	35	sf/fixture	adjacent to ready room
36 902	Restroom - women (crew)	140	2	1	1	1.25	175	-	2	35	sf/fixture	adjacent to ready room
36 911	Restroom - offstage	130	2	1		1.25	163	-	2	65	sf/fixture	
36 912	Restroom - offstage	130	2	1		1.25	163	-	2	65	sf/fixture	
36 913	Drinking Fountain w/ Bottle Filler	-										in gross

SUBTOTALS	
GSF (EXISTING)	4,435
GSF (PROPOSED)	9,081

40 000 PERFORMER SUPPORT

ID	SPACE NAME	NSF (EXISTING)	NSF (PROPOSED)					GSF (WITH FACTOR)	OCC.	UNITS		NOTES
	Dressing rooms			wc	sink	shower						
46 101	Dressing room - conductor	300	300	1	1	1	1.30	390	1	300	sf	Ensuite w/ space for b-grand piano
46 103	Dressing room - music director	55	300	1	1	1	1.30	390	1	300	sf	Ensuite w/ space for b-grand piano
46 104	Dressing room - guest artist/principal	137	300	1	1	1	1.30	390	1	300	sf	Ensuite w/ space for b-grand piano
46 105	Dressing room - symphony	-	150	1	1	1	1.30	195	1	300	sf	Ensuite
46 106	Dressing room - symphony	-	150	1	1	1	1.30	195	1	300	sf	Ensuite
46 102	Dressing room - flexible	-	150	1	1	1	1.30	195	1	300	sf	Ensuite
46 107	Dressing room - flexible	-	150	1	1	1	1.30	195	1	300	sf	Ensuite
46 108	Dressing room - flexible	-	150	1	1	1	1.30	195	1	300	sf	Ensuite
46 109	Dressing room - flexible	-	150	1	1	1	1.30	195	1	300	sf	Ensuite
46 121	Dressing room - 8 people	-	440	1	1	1	1.30	572	8	55	sf/person	
46 122	Dressing room - 8 people	-	440	1	1	1	1.30	572	8	55	sf/person	
46 184	Dressing room - orchestra - men	550	1200	5	5	2	1.30	1,560	26	45	sf/person	
46 185	Dressing room - orchestra - women	423	1200	5	5	2	1.30	1,560	26	45	sf/person	
	Performer facilities			w	d	h						
46 301	Green room - performers' lounge	1,247	1,250				1.30	1,625	85	15	sf/person	Uncasing room and green room combined
46 303	Kitchen	110	300				1.20	360	4	2	# of machines	25sf per machine
46 304	Quiet Room	416	200				1.20	240	2			
46 314	Music library	528	750	25	30		1.20	900	2			

SUBTOTALS	
NSF (EXISTING)	3,766
NSF (PROPOSED)	7,580
GSF (PROPOSED)	9,729

50 000 REHEARSAL

ID	SPACE NAME	NSF (EXISTING)	NSF (PROPOSED)				GSF (WITH FACTOR)	OCC.	UNITS		NOTES
	Rehearsal Spaces - Concert Hall										
56 131	Ensemble/warm up room	-	384	16	24	1.40	538				
56 132	Ensemble/warm up storage	-	58			1.20	69		15%	of warm up room	
56 133	Choir warm up room	-	2,500	16	24	1.40	3,500	100	25	sf/person	
56 134	Ensemble/warm up storage	-	58			1.20	69		15%	of warm up room	
56 141	Small warm up room	55	130	10	13	1.40	182				
56 142	Small warm up room	55	130	10	13	1.40	182				
56 143	Small warm up room	55	130	10	13	1.40	182				
56 144	Small warm up room	55	130	10	13	1.40	182				
56 145	Small warm up room	-	130	10	13	1.40	182				
56 161	Warm up/practice room	-	224	14	16	1.40	314				
56 162	Warm up/practice room	-	224	14	16	1.40	314				
56 163	Warm up/practice room	-	224	14	16	1.40	314				
56 164	Warm up/practice room	-	224	14	16	1.40	314				
56 165	Warm up/practice room	-	224	14	16	1.40	314				

SUBTOTALS	
NSF (EXISTING)	220
NSF (PROPOSED)	4,769
GSF (PROPOSED)	6,654

70 000 ADMINISTRATION

ID	SPACE NAME	NSF (EXISTING)	NSF (PROPOSED)				GSF (WITH FACTOR)	OCC.	UNITS	NOTES
	USUO Administration									
73 111	Private Office - Executive / CEO	230	225			1.20	270	1	225 sf/person	
73 112	Private Office - Executive / CEO	190	225			1.20	270	1	225 sf/person	
73 113	Private Office - Med	145	120			1.20	144	1	120 sf/person	
73 114	Private Office - Med	142	120			1.20	144	1	120 sf/person	
73 115	Private Office - Med	132	120			1.20	144	1	120 sf/person	
73 116	Private Office - Med	344	120			1.20	144	1	120 sf/person	
73 117	Private Office - Med	140	120			1.20	144	1	120 sf/person	
73 118	Private Office - Med	136	120			1.20	144	1	120 sf/person	
73 119	Private Office - Med	136	120			1.20	144	1	120 sf/person	
73 120	Private Office - Med	136	120			1.20	144	1	120 sf/person	
73 121	Private Office - Small	136	80			1.20	96	1	80 sf/person	
73 122	Private Office - Small	136	80			1.20	96	1	80 sf/person	
73 123	Private Office - Small	136	80			1.20	96	1	80 sf/person	
73 124	Private Office - Small	77	80			1.20	96	1	80 sf/person	
73 125	Private Office - Small	77	80			1.20	96	1	80 sf/person	
73 126	Private Office - Small	80	80			1.20	96	1	80 sf/person	
73 127	Private Office - Small	80	80			1.20	96	1	80 sf/person	
73 128	Private Office - Small	145	80			1.20	96	1	80 sf/person	
73 129	Private Office - Small	84	80			1.20	96	1	80 sf/person	
73 130	Private Office - Small	80	80			1.20	96	1	80 sf/person	
73 131	Private Office - Small	80	80			1.20	96	1	80 sf/person	
73 133	Open Office	971	1664			1.20	1,997	26	64 sf/person	
73 134	Board Room	345	600			1.20	720	30	20 sf/person	
73 135	Meeting Room - Small	-	120			1.20	144	6	20 sf/person	
73 136	Meeting Room - Small	-	120			1.20	144	6	20 sf/person	
73 137	Meeting Room - Small	-	120			1.20	144	6	20 sf/person	
73 138	Waiting Area - Receptionist	132	180			1.20	216	3	60 sf/person	
	General									
73 811	Library/reference/copier	254	100			1.25	125	1	100 sf/person	
73 812	Lounge/lunchroom	177	300			1.25	375	20	15 sf/person	
73 813	Kitchen	-	100			1.25	125	2	50 sf/person	
73 817	Storage - general office	55	400			1.25	125	1	100 sf/person	
73 831	Restrooms	86	150	4	2	1.25	188	4	25 sf/ fixture	
73 832	Water Fountains with bottle fillers	-	-							in gross
73 951	Network/telecom equipment room	40	100			1.25	125	1	100 sf/person	

SUBTOTALS	
NSF (EXISTING)	4,902
NSF (PROPOSED)	6,244
GSF (PROPOSED)	7,175

SPARANO+MOONEY ARCHITECTURE

SALT LAKE COUNTY

80 000	SERVICES										
ID	SPACE NAME	NSF (PROPOSED)					GSF (WITH FACTOR)	GSF (EXISTING)	OCC.	UNITS	NOTES
	Building Services		*w*	*d*	*h*						
81 111	Reception - stage door	300				1.30	390	287	15	20 sf/person	Waiting area
81 112	Office - stage door	120				1.30	156	102	2	60 sf/person	Check-in desk
81 211	Office	160				1.25	200	120	2	80 sf/person	
81 212	Office	80				1.25	100	-	1	80 sf/person	
81 213	Office	75				1.25	94	-	1	75 sf/person	
81 214	Office	50				1.25	63	-	1	50 sf/person	
81 215	Office	50				1.25	63	-	1	50 sf/person	
81 311	Workshop - maintenance	500				1.30	650	-	20	25 sf/person	
81 411	Lockers - maintenance staff	100				1.30	130	-	10	10 sf/person	
81 412	Lockers - janitorial staff	100				1.30	130	-	10	10 sf/person	
81 514	Recycling room	225	15	15		1.30	293				Defined by LEED criteria
	MEP rooms										Defined by MEP consultants
	Service elevator - BOH		8	10							In gross
	Service elevator - FOH		8	10							In gross
	Service elevator - FOH		8	10							In gross
	Freight elevator - scenery		12	24	12						In gross
	Loading Dock		*w*	*d*	*# bays*						
81 614	Loading Dock - Concert Hall		13	75	2						in exterior gross
	Storage										
81 711	Storage - holding / receiving lockup	150	10	15		1.20	180	582			
81 712	Storage - maintenance	150	10	15		1.20	180	358			
81 713	Storage - janitorial supplies	150	10	15		1.20	180	-			
81 726	Janitors' closet - Concert hall	40	10	4		1.20	48	40			include mop sink

SUBTOTALS	
GSF (EXISTING)	1,489
GSF (PROPOSED)	2,855

BUILDING SYSTEMS 5

STRUCTURAL SYSTEMS

PROJECT CODES + DESIGN CRITERIA:
The existing Abravanel Hall building was constructed in 1979 and was governed by the 1973 UBC Code. The building construction consists of concrete footings and foundation walls, structural masonry bearing/shear walls, concrete columns, concrete suspended waffle floor slabs, steel open web roof joists, steel trusses, and metal roof deck. The roof decking over the concert hall is topped with concrete for sound considerations. Any proposed new building additions will be classified as a Type-III Risk Category building per the International Building Code because of the occupancy load of the concert hall.

The governing codes for the project will be:
2021 International Building Code
2021 International Existing Building Code

PROJECT LOADING CRITERIA:
Roof Snow Loading:
- Snow Importance Factor, Is: 1.1
- Flat Roof Snow Load, Pf: 33 psf
- Snow Drift Loads per ASCE 7-16

Seismic Design Parameters:
- Risk Category: Type III
- Seismic Importance Factor: 1.25

Wind Design Parameters:
- Risk Category: Type III
- Basic Wind Speed: 109 mph
- Exposure Category: Exposure B

BUILDING ALTERATIONS:
The governing building code for the proposed building alterations and additions will be the 2021 IEBC. Per Chapter 8 and Chapter 11 for alterations and additions to existing buildings, the gravity framing may have alterations that reduce capacity or demand of the existing framing by up to 5%. The lateral framing may have alterations that reduce capacity or demand of the existing framing by up to 10%. Chapter 8 of the IEBC allows alterations of up to 50% of the building area before requiring full compliance with the current 2021 IBC code. Any alterations of more than 50% of the building area will require the building be designed to meet the structural design requirements of Chapter 9 of the 2021 IEBC, which require ASCE 41-13 Tier 3 Seismic Analysis.

The ASCE 41-13 Seismic Evaluation and Retrofit of Existing Buildings provides guidelines for benchmark building design codes. The benchmark building design code for a reinforced masonry shear wall building is the 1997 UBC code. Since the building was designed per the 1973 UBC it does not meet the benchmark design standards for seismic design. Although not necessarily required by code, we would recommend an ASCE 41-13 Tier 3 Seismic Analysis be performed on the building to verify that it meets current seismic design code standards and discover any building deficiencies.

The concrete stair treads in the main lobby are a concern. Fixing the stair treads in the main lobby would be possible through an overbuild system by building new concrete stairs on top of the existing ones. This approach would result in a height difference compared to the existing stairs, but it would be the most feasible and economical way to fix the stair treads. The other option is to simply remove the stairs and build new stairs with steel framing.

As noted in the 2016 Master Plan, Don Barker with BHB Consulting Engineers completed a feasibility study over 20 years ago to determine if a new floor could be added onto the south and west backstage areas. It was determined that a single story would be possible if constructed of lightweight steel structural framing. However, lateral design force criteria has increased by 45% since that time, so this original study is no longer valid. It is likely that any additional areas added to the roof of the existing south and west backstage areas will require new roof framing. The existing concrete framing and foundations below will also likely require additional reinforcing and micropiles/helical piers at the existing footings.

MECHANICAL SYSTEMS

EXISTING UTILITY CONNECTIONS:

Culinary Water:

Existing building culinary water is supplied from adjacent Utah Museum of Contemporary Art (UMOCA) building. The current 4" culinary cold water line routes under the skybridge connecting Abravanel to UMOCA.

Natural Gas:

There is currently no natural gas utility connection to Abravanel Hall.

Sanitary Sewer:

Building sanitary sewer line exits the building towards the access road west of the building. The existing 6" sewer line serves both Abravanel Hall and UMOCA.

Fire Water:

A dedicated 6" fire water line enters the building at the mechanical room from South Temple. This line serves the back-of-house sprinkler system on the lower level and fire hose cabinets located throughout the facility.

EXISTING ENERGY SOURCE(S):

This facility currently utilizes chilled water and steam from the Salt Palace central plant for cooling and heating, respectively. The chilled water is routed from the Salt Palace via a service tunnel that terminates in the Abravanel Hall mechanical room. Supply and return pipes are 8" lines. These pipes also deliver chilled water to UMOCA via 4" branch lines routing through the lower level and under the skybridge.

Medium pressure steam from SPCC is routed to Abravanel Hall through the service tunnel to the mechanical room. The 8" steam supply connects to a steam pressure reducing station in the mechanical room. A 4" branch line upstream of the PRV diverts steam to serve UMOCA. Steam is used for heating via steam coils in the central air handlers and is also converted to heating hot water for use in terminal heating devices and for generating culinary hot water via hose cabinets located throughout the facility.

EXISTING HVAC SYSTEMS:

General:

The primary existing HVAC system consists of central constant and variable volume air handling units located in the mechanical space located in the lower level west of the performance hall. These units include steam pre-heat coils, chilled-water cooling coils, and non-functional humidification injectors. Units are currently tagged AH-1 and AH-7. Additional central VAV air handlers were added during the 1997 Ticket Office expansion. These air handlers are currently tagged AH-11 and AH-12.

AH-1 through AH-3 were originally designed as constant volume units and supply air via low pressure supply to the concert hall, stage, tiered seating and sound lock areas. Air from the air handling units is ducted to ceiling diffusers. Return air from the concert hall and stage areas is pulled from floor returns, with the concert hall return being pulled through mushroom-style floor registers into a return air plenum that is located under the main seating area. The stage return routes through ducts and into the underfloor return plenum. Return air from the tiered seating is routed back to the mechanical room via ducts that utilize chases located around the perimeter of the concert hall. Return air from the sound locks are via ceiling grilles with the return ducted back to the fan room.

AH-4 through AH-7 were originally designed as variable volume units that utilized variable inlet vanes to control airflow. These units have since been replaced by variable frequency drives (VFDs) that adjust the speed of the fans to control air volume. Air handlers AH-4 through AH-7 serve the lobby, circulation areas, and administration and support areas. Medium pressure supply air is routed to variable volume terminal boxes with reheat coils that control air volume and temperature for meeting occupied space heating and cooling demand.

Air from the terminal boxes is generally distributed via low pressure supply ductwork to ceiling diffusers. One notable exception is the lobby where supply air is split between ceiling supply diffusers and floor supply registers. The floor supply is delivered via a low-pressure supply duct and supply air tunnel to the perimeter of the lobby on the north and east faces.

All air for AH-4 through AH-7 is returned via various return air plenums back to the mechanical room where it is ducted to return fans and back to the air handlers.

Existing air handling units, some of the terminal boxes, and distribution ductwork are all original equipment and are past the expected useful life. Many VAV terminal boxes serving the administration areas and lobby were replaced circa 2015. AH-11 and AH-12 were added as part of the Lobby/Ticket Office expansion. Both are VAV air handling units that deliver air via medium-pressure supply duct to VAV terminal boxes. Low-pressure supply ducts distribute air from the terminal boxes to occupied spaces via ceiling diffusers.

Air Distribution:

Outside air for building ventilation enters a mechanical shaft located on the west side of the building above the mechanical room. The intake louver is on the south face of this shaft. Air is directed to all air handling units via low-pressure ducts. The lower-level mechanical room acts as a relief air plenum for the building. Automatic control dampers divert excess air from the various return air ducts into the mechanical room. From there, automatic control dampers at the main mechanical shaft allow excess air to follow a relief duct up the shaft and out through relief louvers located in the soffit on the west face of the building.

Humidification:

The original building design included use of central plant steam via dispersion arrays in each air handling unit to humidify the building.

Building Heat:

Medium-pressure steam is delivered to Abravanel Hall from the Salt Palace central steam plant. A pressure-reducing station in the mechanical room transitions the medium-pressure steam to low-pressure for use in steam terminal devices and conversion to heating hot water for use in reheat coils and other hot water heating devices. There is also a medium pressure steam branch line that supplies steam to UMOCA. This branch line runs through the support areas in the lower level and exits via the skybridge between Abravanel Hall and UMOCA.

Building Cooling:

Chilled water from the Salt Palace central chilled water plant is distributed through cooling coils in each of the air handlers. The cooling coils are the primary means of meeting cooling requirements. The chilled water lines also include a loop that supplies chilled water to meet the cooling needs of UMOCA. This branch loop runs to UMOCA via the skybridge and runs in the ceiling space of the lower level back-of-house areas.

Controls:

The current building automation system is Alerton but includes several pneumatic actuators and other components. The system needs to be updated to current direct digital controls (DDC) per Salt Lake County standards.

Domestic Hot Water:

A low-pressure steam-to-hot-water converter located in the mechanical room currently generates all domestic hot water for both Abravanel Hall and UMOCA.

MECHANICAL DESIGN CRITERIA

Project location: Salt Lake City, UT
Project elevation: ~4,225 feet
Building use summary:
General Occupancy Varies by performance schedule and rehearsal demand
Ticket Office M-F 10:00am – 6:00pm; Sat 10:00am – 2:00p

Codes and standards
International Building Code, 2021 Edition
International Mechanical Code, 2021 Edition
International Energy Conservation Code, 2021 Edition
International Plumbing Code, 2021 Edition
International Fuel Gas Code, 2021 Edition
International Fire Code, 2021 Edition
ASHRAE/IESNA Standard 90.1-2019
ASHRAE Standard 62.1-2019
ASHRAE Standard 55-2020
Salt Lake County Design Guidelines
Other applicable NFPA and UL regulations

OUTDOOR DESIGN CONDITIONS

Cooling Month (ASHRAE Monthly 2%)	T_{DB} (°F)	T_{MCWB} (°F)
January	49.2	39.7
February	55.1	42.8
March	66.4	47.7
April	74.9	85.2
May	85.2	56.7
June	95	59.9
July	99.2	63
August	96.2	62.5
September	89.6	60
October	77.7	54.2
November	62.4	46.4
December	52.3	41.9
Heating Design Day (ASHRAE Extreme n=5)	0	-

INDOOR DESIGN CONDITIONS

Space Type	Occupied Temp Range	Unoccupied Temp Setpoint	Relative Humidity*
Typical Space	Annual 72 – 75°F	60°F Heating/90°F Cooling	Summer 45%, Winter 30%

*Humidity listed is for calculation purposes only, active humidity control is limited to instrument storage areas

SPACE OCCUPANCY TYPES

Type	Occ. MET	Individual Heat Gain	Ventilation Required		Exhaust Required
		Sensible/Latent (btu/h)	CFM/ft²	CFM/Occ	CFM/Unit; CFM/ ft²
Lobbies/Pre-function	1.5	250 / 200	0.06	7.5	-
Concessions	1.5	250 / 200	0.12	7.5	0.7 cfm/ft²
Office Space	1.2	250 / 155	0.06	5	-
Conf./Meeting Rm/Study	1.2	250 / 155	0.06	10	-
Multipurpose	1.2	250 / 155	0.06	10	-
Rehearsal/Warm-up	1.5	250 / 200	0.06	10	-
Performance Hall, Stage	1.5	250 / 200	0.06	10	-
Performance Hall, Seating	1.2	250 / 155	0.06	5	-
Dressing Room	1.5	250 / 200	0.06	5	0.25 cfm/ft²
Lounge / Green Room	1.2	250 / 155	0.12	5	
Corridor	-	-	0.06	-	-
Storage Rooms	-	-	0.12	-	-
Equipment Rooms	-	-	0.06	-	-
Toilet	-	-	-	-	50 CFM/Unit
Janitor/Housekeeping	-	-	-	-	1 CFM/ft²

HVAC SYSTEM DESIGN

General:

HVAC systems and equipment within Abravanel Hall are mostly original. Due to the age of existing equipment, and to facilitate efficiency improvements to the building, the design should prioritize replacement of the air handlers, VAV terminal boxes, and other terminal heating units such as unit heaters and finned tube heating elements. The existing medium-pressure distribution duct as well as low pressure distribution duct and diffusers will need to be removed and reconfigured to the modified space layout per Conceptual Design layouts.

To address specific energy-efficiency improvements and maintenance concerns with the existing steam heating system, the design should incorporate removal of the existing steam distribution piping and associated equipment including steam pressure reducing station, steam-to-hot water heat exchanger, low-pressure steam piping, steam pre-heat coils, and steam dispersion arrays at the air handlers. Demolition should also address removal of the existing steam traps, condensate piping, and condensate pump unit. All steam and condensate piping should be removed back to the point of diversion at Abravanel Hall.

Air Distribution:

The building HVAC systems design should incorporate new VAV air handling units to replace the existing units. Air handlers would consist of a mixing section, filter section with minimum MERV 13A media, supply fan section consisting of a multiple fan array in lieu of large single fan, chilled water cooling coil, and hot water preheat coil.

As an energy-saving feature, the design should investigate if indirect or direct evaporative sections may be able to be incorporated into the air handling units. If direct evaporative cooling is used, the unit MUST incorporate by-pass dampers to allow high-limit control over space relative humidity. Indirect evaporative cooling may tie into the Salt Palace system or incorporate a local cooling tower.

Both options should be investigated by the Design Team.

Both medium-pressure and low-pressure distribution ductwork will primarily be sheet metal. All supply and return ductwork will be lined or insulated to control condensation. Any metal-exposed round-supply ductwork will be double-wall construction or lined. No duct wrap insulation will be used on exposed metal ducts in occupied spaces. Outside air supply ducts will be insulated with a minimum of R-6 rigid board insulation between the outside air intake and connection to the air handling unit(s).

Supply ducts and air diffusers for the mechanical ventilation system will be selected to minimize draft and noise. Diffuser duct run outs will be sized at or less than 500 fpm. Supply ducts within the acoustic boundary of the concert hall will be sized to keep air velocity at or below 700 fpm in the mains, and under 300 fpm in branch runouts.

To improve efficiency and thermal and acoustic performance at the concert hall and stage, the design should explore reconfiguring the space to use thermal displacement delivery. This approach would require inverting the current airflow to the space. The underfloor return plenum would become the supply plenum, using floor displacement diffusers in place of the return air mushrooms. Current slot-style supply diffusers would be replaced with slot return grilles.

The characteristics of thermal displacement include low air velocity, higher supply air temperatures, and stratification of air in the occupied zone. These measures contribute to improved acoustic performance, reduced energy consumption, improved spectator comfort, and improved indoor air quality.

Displacement delivery should also be considered for the entry lobby. This approach would require reconfiguring the floor return grilles at the south side of the lobby to become supply, and routing return air off the top of the lobby back to the mechanical room. Floor supply openings would also require the addition of finned heating elements to provide require heat to the lobby perimeter.

To meet thermal zoning requirements, individual occupant spaces may be provided with variable air volume ceiling diffusers to give the occupant control over heating/cooling airflow and contribute to better occupant comfort. New unit heaters and finned tube radiation should be installed at back-of-house areas replacing similar systems currently in use.

Mechanical Ventilation:

Outside ventilation air will be provided through the central air handling units. Outside air intakes at the air handlers should include automatic control dampers to ensure outside air is disabled outside of occupied hours and to allow dynamic adjustment of outside air based on building occupants.

Air Filtration:

HVAC systems will include air filters rated at MERV 13A on outside air and return air being recirculated to occupied spaces.

Exhaust:

Existing exhaust fans will be removed and replaced. Toilet rooms will be served by a general exhaust fan that will operate during normally-occupied hours. Housekeeping areas where chemicals may be stored will be exhausted directly to the outdoors. Fans will run continuously. Exhaust terminations will be located at the exterior walls or roof of the building.

Heating Hot Water System:

Building heating water will be provided by new high-efficiency, condensing boilers. The boiler plant will consist of two or more boilers, each sized for part of the full building load with a redundant boiler for backup. Boilers will generate hot water for use at the air handlers, finned element heaters and other supplemental heat that may be required. Boilers will be provided with dedicated boiler pumps to ensure adequate flow through each boiler.

Heating water will be circulated to terminal devices via a secondary variable-volume circulation loop. Secondary circulation loop will be provided with redundant circulation pumps to ensure circulation is maintained in the event of a loss of a single pump.

The heating system is expected to be in the space currently occupied by the steam piping and equipment. There is additional space available in the southeast area of the mechanical room.

Chilled Water System:

Chilled water will be provided by the Salt Palace chilled water plant. A new chilled water loop will be extended from the new chilled water supply from the Salt Palace central plant at the UMOCA fan room. The new supply will be extended to Abravanel Hall via the skybridge between Abravanel Hall and UMOCA.

Domestic Hot Water Systems:

The domestic water heating will use local high-efficiency, gas-fire water heaters to generate culinary hot water. Water heaters will be storage-tank type. Domestic recirculation pumps will ensure culinary hot water lines remain at temperature. Individual thermostatic mixing valves will be installed at all public lavatories and hand washing sinks.

Plumbing Fixtures:

Selected plumbing fixtures will comply with International Plumbing Code and will carry the Watersense label where available.

Plumbing Piping:

Where replacement of the existing piping is necessary, underground waste, vent, roof drain, and roof drain overflow piping will be either standard weight cast iron or solid wall PVC plastic drainage piping using DWV fittings and installed in accordance with the manufacturer's recommendations. Above-ground waste, vent, roof drain, and roof drain overflow piping (if required) will be standard weight cast iron. If required, new roof drains and roof drain overflows will have cast iron domes.

Controls:

Building automation system for the existing and new facilities will be Alerton direct digital controls (DDC). The controls will be a web-based system that will be an extension of the Salt Lake County Building Management System. The system will be designed to conform with the County-wide standard for interconnectivity and ease of monitoring and control of County facilities. Controls for domestic hot water system will be included with this system. The BAS will provide the capability to:

- Construct and modify building operating schedules.
- Control all motorized valves and dampers as well as mechanical equipment.
- Temperature control for all occupied spaces.
- Monitoring of selected points throughout the system.
- Provide alarms of critical points as selected.

Testing and Balancing:

The systems shall be balanced and adjusted by a person or persons fully familiar with mechanical systems of the type and whose main business is the balancing and adjustment of mechanical systems. The balancing contractor must either be certified by NEBB or AABC.

Seismic:

All new equipment will be furnished to be structurally adequate to withstand seismic forces as outlined in the International Building Code for the project locations seismic Zone. Equipment bases shall be designed for direct attachment of seismic snubbers and/or seismic anchors.

FIRE SUPPRESSION

EXISTING FIRE SPRINKLER SYSTEM

The existing facility is partially sprinklered. Plans developed during the previous masterplan were partially installed. The fire riser is new and is located deep into the lower-level mechanical room and is not considered directly accessible. Therefore, a post-indicating valve (PIV) is required outside of the building by NFPA 24. No PIV is installed on-site rendering the system deficient.

A fire department connection (FDC) is required by IBC/IFC, NFPA 13, and NFPA 14. No FDC is installed on-site rendering the system deficient. The FDC and PIV components are essential for fire-fighting operations, wherein they give the fire department direct control over the pressure and flow of water available at the end of manned hose lines within the building.

A new sprinkler zone riser is installed and capped at the riser under the ticket booth area. It is available for future expansion of the sprinkler system into the ticketing lobby and adjacent offices. The remainder of the building (excluding the stage) is set up to be installed from the existing feed main through the mechanical space. This feed main supplies new floor control assemblies which have been installed at each level in the east and west stairways.

A new pre-action riser connected to shop air is installed and capped in an offstage room west of the auditorium. This riser is intended to serve the space over the stage in the future.

The existing sprinkler system piping in the corridor behind the stage and in the instrument storage areas are below the NFPA allowable size. This system appears to be approaching the end of its useful life.

Piping is also supplied through demising walls to UMOCA and below grade from the west mechanical rooms to locations outside of this building. The condition of the piping as it exits the building and beyond is unknown but believed to be poor.

FIRE SPRINKLER SYSTEM DESIGN
Drawings from the 2016 Plan indicate a double-interlocked pre-action system with 5.6 k-factor sprinkler installed over the stage. Such a system cannot be installed, as it would not meet NFPA nor FMG standards. It is recommended that the area over the stage be supplied from a wet-pipe system of schedule 40 black steel, with sprinklers of a minimum 8.0 k-factor. If the stage is to be used for purposes requiring demonstration, or combustible loading beyond orchestra related commodities, it is recommended that the sprinklers be of a nominal 14.0 minimum k-factor.

If the combustible loading is high enough, it is also recommended that an analysis of the occupant egress, smoke movement, and fire spread be performed, with the objective of determining whether a smoke control system needs to be installed. It is possible that such a fire protection analysis could reveal that sprinklers are not required above the auditorium with a properly-designed smoke control system. Proceeding in that direction would constitute a performance-based approach to fire protection and would need to be approved by the AHJ.

Without a further fire protection analysis, it is recommended that the fire sprinkler plans developed during the 2016 Plan, which indicate sprinklers installed throughout all spaces, continue to be installed under close coordination with acoustical consultants.

ELECTRICAL SYSTEMS

CODES, STANDARDS + REFERENCE MATERIALS
Americans with Disabilities Act (ADA)
International Energy Conservation Code 2021 (IECC)
or ASHRAE 90.1 Energy Code
Electronics Industries Association/Telecommunications
Industry Association (EIA/TIA)
Building Industry Consulting Services International (BICSI)
International Building Code (IBC)
International Fire Code (IFC)
Illuminating Engineering Society of North America (IESNA)
National Fire Protection Association (NFPA)
(applicable sections including but not limited to):
NFPA 70, National Electrical Code
NFPA 72, National Fire Alarm Code
NFPA 101, Life Safety Code
NFPA 110, Emergency and Standby Power
Underwriter's Laboratories (UL)
State of Utah Fire Marshal Laws, Rules and Regulations
Handbook on Safety Code for Elevators and Escalators (ASME A17.1)
National Electrical Safety Code (NESC)

System Responsibility Matrix

	Designed By	Furnished By	Installed By	Notes
Power & Lighting				
Medium Voltage Transformer(s)	NIC	NIC	NIC	RMP Transformer
Electrical Service Upgrade	Design Team	Contractor	Contractor	Separate breakout Pricing
Emergency/Standby Generator	Design Team	Contractor	Contractor	Separate breakout Pricing
Electrical Sub-Metering	NIC	NIC	NIC	
Electric Vehicle Charging Stations	NIC	NIC	NIC	
Interior Lighting	Design Team	Contractor	Contractor	
Exterior Lighting	Design Team	Contractor	Contractor	
Power Systems and Distribution	Design Team	Contractor	Contractor	
Telecomm				
Raceways, Conduit/Cable Tray/J-Hooks	Design Team	Contractor	Contractor	
Patch Panels and Inserts	Design Team	Contractor	Contractor	
Cat 6A Horizontal Cable	Design Team	Contractor	Contractor	
Data ports, Faceplates, Boxes	Design Team	Contractor	Contractor	
Building MDF/IDF Racks and Ladder Rack	Design Team	Contractor	Contractor	
Active Network Electronics	Owner	Owner	Owner	
Security & Misc.				
Raceways	Design Team	Contractor	Contractor	
CCTV Security Cameras	Design Team	Contractor	Contractor	
CCTV Headend, Programming, Licensing	Owner	Owner	Owner	
Access Controls & Intrusion Detection	Design Team	Contractor	Contractor	

BUILDING SERVICE CODE ISSUES

Service Fire Hazard:

From a site observation walk, the original build for the building was to have a 1600A 480V switchboard with a 1600A main circuit breaker (MCB) and a 2000A 208V stepdown switchboard for all 280/120V loads with a 2000A MCB. During the site walk, it was noticed that it appears that the 1600A 480V main circuit breaker was swapped at some point with the 2000A 208V main circuit breaker. This configuration is a major concern and fire hazard for the building. The current main switchboard is protected by a 2000A main circuit breaker on a 1600A bus rated switchboard. The building could easily overload the bussing on the main switchboard due to this over-site and cause a potential meltdown of the main switchboard and potential fire. See Exhibit A for photos of this issue.

Resolution: This issue should be remedied regardless of what happens with the venue masterplan.

Main Electrical Room Egress:

The main electrical room currently houses multiple switchboards greater than 1200 Amps and larger than 6' in equipment length. Per NEC 110.26, this electrical room is required to have two forms of egress and currently only has one. The egress door also is not equipped with panic hardware meeting NEC and IBC requirements.

Resolution: Review existing electrical room as part of the future design project to add or update egress from this space.

OWNER PROJECT REQUIREMENTS

Project Drivers:

Provide electrical, power, and lighting systems that will meet theatrical and building standards and provide patrons and employees with the building needed for current standards. Electrical engineers and theater system designers should look at all systems within the electrical scope of the building and provide the corresponding systems to support the modern theater's needs, while also maintaining and following building standards to avoid unnecessary clashes or maintenance issues and costs.

Project Goals:

- Provide consistent, maintainable, and efficient electrical systems
- Provide power systems, raceways, and circuit density for a modern theater

Project Requirements:

- Provide systems that meet best-in-class standards
- Provide electrical systems that meet and exceed energy code requirements
- Provide flexible, controllable systems for occupants and employees

Separate Cost Estimate Breakouts

- Electrical Service – Provide a separate line item(s) for this work
- Emergency Generator – Provide a separate line item(s) for this work
- All other work shall be provided in the Theater TI bucket

EXISTING ELECTRICAL SERVICE DISCONNECT

The building is currently provided with an existing service entrance utility fed from the Salt Palace and does not have its own dedicated electrical service. The existing electrical service shall be demolished. The existing main switchboards shall be salvaged to be re-fed from a new electrical current transformer and metering switchboard to provide a separate service for the building.

The building is currently served by emergency backup power provided from a central generator provided by the Salt Palace.

BUILDING ELECTRICAL UTILITIES + SITE PLAN

Rocky Mountain Power (RMP) owns the medium voltage (MV) distribution system that runs through the project site. Abravanel Hall is currently fed from the Salt Palace electrical service. This service currently combines all building power from the Salt Palace, Abravanel Hall, and UMOCA into one combined utility bill. The current max peak load for the three buildings is 4,800kW. The peak demand post 2020 has been 3,500 kW.

One of the goals of the project is to provide a new building service separated from the Salt Palace. This pricing is to be broken out as a separate phase called “Building Service Phase” in the cost estimate for the building.

For the new building service, the project will be served by the RMP medium voltage distribution system. The existing building will require a new medium voltage transformer. The existing building main switchboard is a 480/277V, 1600A switchboard. The building load is currently estimated to be 750 kVA with a 12,470V primary from RMP and 480/277V grounded wye secondary for the building; final load should be coordinated during design once all building loads are available. Coordination with RMP on the size of the building transformer shall be determined throughout the design phase.

The building will need to provide a new vault/pad for the transformer, primary and secondary conduits, and CT/metering switchboard/enclosure. RMP will provide the transformer, cabling, and meter.

BUILDING SERVICE + DISTRIBUTION

Main Service and Distribution

> The main electrical room is existing and houses the 480/277V, 3-phase, 4-wire main distribution switchboard. This room currently appears to be large enough for the equipment but does not have two forms of egress on opposite ends of the room.
>
> The main 480/277V current transformer and metering switchboard is anticipated to have a rating of approximately 1,600 Amps; this capacity shall be verified and adjusted as necessary during design. It shall have a main circuit breaker and shall be free-standing, exterior rated, and equipped with both utility and Owner metering. The switchboard will feed the existing distribution switchboard that provides power for the entire building.

Panelboards and Distribution

> Distribution panelboards may be provided throughout the building for any part of the remodel project that will require additional power or additional circuitry. The panel locations shall consider other buildings and architectural considerations, so that the conductor distance from any panelboard to the most remote outlet is not greater than 150’. Panelboards should be surface mounted; ease and accessibility of running new and future conduits out of each room is an important consideration in defining the location of the rooms. If inaccessible ceilings surround the room, five (5) spare ¾” conduits from each panelboard shall be stubbed to accessible ceiling areas and tagged as spare. These rooms shall be dedicated to electrical distribution and shall not be used for storage or any other purposes.

Metering

The building will be provided with new electrical digital metering at the CTM service switchboard level or a new externally-mounted digital meter at the main distribution switchboard for building metering. Upgrades for new IECC 2021 sub-metering requirements are not anticipated at this time.

Conductors

All feeders will be copper, and branch circuits will be copper. Conductors for branch circuits will be sized to prevent voltage drop exceeding 3% at the farthest load. The total voltage drop on both feeders and branch circuits will not exceed 5%. For measurement purposes, a load of 180 VA (1.5A) per outlet, with a 50% diversify factor will be assumed.

Raceways

All raceways are minimum ¾"C and 1" minimum for telecom. MC-cable is not permitted for use in on the project. Raceway shall be included for all security, AV, and technology systems whether furnished as part of the construction contract or furnished by the Owner.

Fault Current and Coordination Study

A fault current and coordination study will be performed by the contractor to indicate available fault current at all points in the distribution system. New equipment will be rated for the amount of available fault current. Fuses or breakers will be selected to ensure minimum system outage due to overloads or fault currents. Set breakers with adjustable long time, short time, instantaneous, and/or ground fault settings for optimum system coordination. Per the NEC, emergency systems will be selectively coordinated to the extent possible.

Surge Protective Devices

Surge Protective Devices (SPDs) and "noise" protection is provided at service equipment (each main) and on main 480/277 and 208/120V distribution panelboards in the facility, which serve computer terminals. SPD units will be integral to the panelboard or switchboard.

Outlets

Outlets shall be 20A, minimum. The program and space data sheets shall be used as a guideline, but user input shall be welcomed during the design. In all cases, the location and number of outlets should be coordinated with the building users to ensure that their needs are met. Unless noted otherwise, the following shall be used as a general guideline where more specific requirements are not elsewhere identified. Each outlet location shall be coordinated with the Design Team and end user during design. Where the term "outlet" is used, this term refers to a 20A duplex receptacle outlet (unless otherwise noted).

Reception Area: For each workstation provide one quadplex. Duplex outlets on walls near desk/counter locations and floor boxes underneath of desks for power/data where located off of walls.

Corridors, Lobbies: Provide at least one outlet every 30' of wall space of the corridor or lobby; Control Rooms: For each workstation provide one quadplex. Provide dedicated duplex outlets for any equipment locations. Provide duplex outlets spaced every 6-8' along walls.

Dressing Rooms/Green Rooms: Dressing rooms will be provided with an above-counter outlet at each dressing location along with mirror lighting, switches, and pilot lights per NEC 520. Provide convenience outlets throughout the space.

Lounges/Breakrooms/Kitchenettes/Concessions: GFI Outlets on dedicated circuits every 4' on countertop plus dedicated outlets for refrigerator, microwave, and other equipment locations, plus one outlet for every 10' of other wall space in room.

Restrooms: One GFI outlet on wall adjacent to sink at counter height, plus one remote from sink at standard height for breast pumps, vacuum cleaner or power scrubber. Confirm final location with Owner.

Storage Rooms (small), Janitor's Closets: One outlet, near light switch, on GFCI as required.

Offices: For each workstation provide one quadplex and at least two duplex outlets on opposite walls, with power on each wall if practical.

Mechanical/Electrical Rooms: At least one outlet on emergency power.

Building ER/MDF: Provide two dedicated 20A quadplex outlets at top of each rack, one on normal power and one on EM power. Several outlets on emergency power around perimeter of room with circuit density to allow for at least 100 watts per square foot mounted at 48". The exact quantity required will need to be coordinated with the user groups and the anticipated equipment, including future provisions as well.

Other Areas: Refer to individual space plan data sheets, and where not defined coordinate requirements with user during design.

Grounding

All feeder and branch circuit raceways will include an insulated equipment grounding conductor. Provide a grounding riser system throughout the telecommunications closets, with grounding bus bars mounted accessibly in each closet. In computer or server rooms with raised access flooring, provide a signal reference grounding grid in accordance with IEEE standard 1100-1999. All grounding systems will be bonded together per NEC requirements.

ELECTRIC VEHICLE + SOLAR PV

No EV Chargers or PV systems are currently anticipated for the project

EMERGENCY / STANDBY POWER SUPPLY SYSTEMS

A separate Emergency Electrical Room will likely be required for the project to house the emergency and standby electrical equipment. This room will be sized at 12' x 8' at a minimum. A diesel-powered standby/emergency generator shall be included for the building and shall follow the requirements of NEC 700, 701, and 702. The generator is estimated to be around 250-300kW; its actual size will be determined during design once the exact generator loads have been determined. The generator will be outdoors with weather-protective, level II sound-attenuating housing. Fuel will be contained in a skid-mounted, double-walled tank. Fuel supply is anticipated to be minimum 24 hours at full load but should be determined during design. A tier IV generator exhaust system is not anticipated for the project.

Provide two automatic transfer switches: one for emergency/life safety and one for non-emergency (standby) loads. Provide a manual docking station meeting NEC 700 requirements. Annunciate alarms adjacent to fire alarm panel. The following will be provided with each transfer switch with possible changes or additions during design:

- Emergency #1
  - Emergency egress and exit lighting
  - Fire alarm
- Standby #1
  - Electrical room – outlets
  - Communications rooms – outlets and air conditioning
  - Elevator
  - Critical equipment
  - Building loads (if legally-required standby is not required)

Emergency distribution and branch panelboards shall meet the same requirements as the normal power systems. All distribution and branch panelboards shall have a minimum 10% spare capacity and breaker space. The emergency generator shall have a minimum of 10% spare capacity. Consideration should be given in locating a space to place this equipment. The design shall review if any elevator or fire pump will need to be provided with emergency backup power during design as this consieration will have major impacts on the emergency generator system.

LIGHTING

General

The basis for design shall be the IES and its Recommended Practices for Theatrical Performance Halls and other applicable spaces such as control rooms, offices, and others, as well as Utah State Health Department Requirements or Codes where applicable, i.e. restrooms. For critical interior spaces a point-by-point plot of illuminance establishing conformance with the Recommended Practices can be furnished. Light sources shall be LED for the project.

IECC requirements shall be met and exceeded to fulfill the overall project requirement with goals for lighting power density to be 10% less than required. Energy savings design techniques such as daylighting control, occupancy sensors, centralized and de-centralized control systems, and energy efficient fixtures/ballasts shall be used where practical to maximize energy efficiency.

Interior Lighting

The building shall be provided with areas of upgraded LED lighting as part of the project. Utilize upgraded and standard LED fixtures to meet the illumination requirements while maintaining high efficiency and requiring minimal maintenance. Install fixtures in locations such that special equipment is not required for maintenance. Lighting intensity and uniformity should provide shadow-free and glare-free illumination of work surfaces. Lighting intensity control using dimmers or multi-level switching should be incorporated in all regularly occupied areas.

The following table summarizes fixture types, lighting levels, and control methods for important spaces.

Function / Space	***Fixture Type***	***Controls Type***	***CRI***	***Illuminance (Avg. FC)***
House Lighting	Upgraded Pedants with I/D	dimming, vacancy, multi-zone, multi-scene	80	20-30
Reception Area	Upgraded Pedants with I/D	dimming, vacancy, multi-zone, multi-scene	80	30-40
Corridors / Lobbies	Upgraded Pedants with I/D	dimming, vacancy	90	20-30
Control Rooms	Recessed 2x2 or linear fixtures with track lighting at desks	dimming, vacancy, multi-zone	90	30-40
Dressing / Green Rooms	Recessed 2x2 or linear fixtures	dimming, vacancy	90	30-50
Lounges / Break Rooms / Concessions	Flexible lighting, recessed	dimming, vacancy, multi-zone	80	30 (ambient), 50 (task)
Offices / Small Rooms	Recessed 2x2 or linear fixtures	dimming, vacancy	90	30-40 (ambient)
General Storage	LED Strips	On/Off, vacancy	-	40-50
Restrooms	Recessed linear / sconce lighting	Occupancy	-	15-30
Elec. / Mech. / Comm Rooms	LED Strips	On/Off, toggle	-	30

*UT Health Department Code Required Lighting Level
**Light level for ambient lighting only, additional task lighting shall be provided by Owner

Lighting Controls

All interior lighting shall be controlled by some automatic means to meet energy code requirements and to reduce overall building energy use. This approach shall include vacancy sensors for smaller enclosed areas and relay control with clock and/or timer/occupancy supervision for larger areas. Dimming provisions shall be provided throughout the project spaces as required by the Owner. Large areas should be designed for multiple zones and light level control with occupancy sensors to allow energy reduction when the maximum light output is not needed. Uniformity must be maintained when in reduced lighting modes. The system(s) used shall provide for precise control while allowing for simplicity, flexibility (multiple users and departments), and low maintenance.

Wherever natural daylight is provided, incorporate daylighting controls with daylight sensors and continuous dimming to promote energy savings by using artificial lighting only as needed.

Vacancy/occupancy sensors should be used in regularly-occupied enclosed areas such as break rooms, restrooms, and similar spaces to shutdown lighting when the areas are not occupied. Lighting within the Hall and in common areas such as corridors and lobbies should be controlled by a programmable networked lighting relay control system that is integrated into the theatrical lighting and dimming system.

Theatrical Lighting, Dimming + Lighting Controls – Refer to Theatrical Section

Emergency Illuminance

Select standard building lighting as may be required to achieve the illuminance criteria set forth in the NFPA Life Safety Code, IBC, and local codes. Designate these fixtures as egress lighting fixtures.
Provide dedicated branch circuiting from the emergency power branch. Emergency lighting shall be provided on all paths of egress including but not necessarily limited to corridors, restrooms, mechanical rooms, electrical rooms, and communication rooms. Egress pathways shall be provided with minimum lighting levels of 1 footcandle.

Provide illuminated exit signs in locations as required by the NFPA Life Safety Code, IBC, and local codes. Exit signs shall be cast aluminum LED type. Provide dedicated branch circuiting from the emergency power branch.

FIRE ALARM

Comply with state Fire Marshal's "Rules and Regulations" and requirements. The existing building FA system is a Notifier NFS2-3030 system. The existing building is an A occupancy type. The existing system is expected to remain; however, this expectation needs to be confirmed during design for available loops, power, and devices to be added as well as new device sync capabilities with the existing system. New FA devices shall be placed in all new areas of the project at a minimum. All FA wiring will be in conduit. Final programming of the system will be coordinated with the existing system to ensure that the program will be compatible with existing FA programming.

SECURITY SYSTEMS

ACCESS CONTROL + VIDEO SURVEILLANCE

All security systems will comply with any established building standards and are capable of being integrated into the existing building-standard security system. Systems will annunciate alarm conditions to be completely monitored.

Security System devices, cabling, control panels, monitors, terminations, etc. are anticipated to be provided as part of the theater project and will be furnished, installed, and connected by Contractor.

CARD ACCESS

A complete access control system shall be provided and be compatible with the existing building system. This system will be coordinated with the Owner as design proceeds. The access control system needs to utilize the existing cards and integrate into the existing system; however, a new access control headend system is anticipated for the project.

The access control system shall include control entry to all perimeter entry / exit points and interior spaces as discussed further in the design process but should be included for cost purposes. Card readers will be the proximity type and will comply with any established Owner Standards. Card readers will report to a central door controller. Coordinate door hardware to minimize the aesthetic impact on the appearance of the building. Request-to-exit motion detectors will be installed on the secure side of each access-controlled door.

VIDEO SURVEILLANCE (CCTV)

A video surveillance system is provided for the building, but has many deficiencies noticed throughout and additional video surveillance cameras shall be installed as part of the project.

Cameras shall be added at the building perimeter, all building entry / exit points, at select main building thoroughfares, in lobbies, and at select sensitive interior areas. High-megapixel cameras will monitor exterior areas including the building perimeter.

Fixed megapixel cameras will monitor designated locations inside the building. Cameras will be installed in appropriately rated enclosures. Signals from cameras will be connected to a central switching / multiplexing system with a minimum 21" video monitors for viewing. All camera images will be digitally recorded by NVRs that are local area network (LAN) accessible. Additionally, cameras will be capable of being monitored and controlled at a remote location via the LAN. Provide NVR with 50% spare channels; cameras shall be fixed 1080p HD IP cameras, locations shall be coordinated with Owner and finalized during design.

A complete, upgraded video surveillance system shall be provided.

INTRUSION DETECTION

A complete intrusion detection system shall be provided.

The intrusion system shall include electronic monitoring and status reporting of all building entry / exit points, select building thoroughfares at select sensitive interior areas, and the emergency generator. Sensing devices will include door position switches. The intrusion detection system will not be integrated with the video surveillance system.

CABLING + NETWORKS

TECHNOLOGY SYSTEMS

The existing building structured cabling system and wireless systems are inadequate and shall be upgraded as part of the project. New, dedicated IT rooms shall be established, and a new high-density wireless solution shall be provided for the building.

All technology systems shall comply with Owner Standards. A category 6A solution should be the structured cabling solution for the building. The contractor chosen to do this work will be required to have all crew members certified and trained by the manufacturer of the product installed, and BICSI-certified or equivalent.

Rack mount all cable termination equipment inside open frame four post racks. Provide the MDF and IDF rooms with ¾" plywood painted with fire retardant paint on all walls.

RISER DISTRIBUTION

Telecommunications closets shall be provided in each area of the building and stacked on each floor. The minimum size of the main (ER) telecommunications room is 10' x 12', and the satellite (TR) rooms 10' x 11'. Coordinate size, equipment layout, and wall space with all communications, security, AV and other equipment that will be housed in these rooms. Closets shall be located such that when cabling is routed through the raceway system provided, the cable distance will not exceed 290' to the furthest outlet. Provide 4" sleeves in each TR between basement and level 1 for backbone distribution. Dedicated HVAC service is required in each closet and shall be supplied with emergency power.

HORIZONTAL DISTRIBUTION

Provide a cable tray distribution network above accessible ceilings throughout the building and into the Telecommunications Room (TR). Extend the cable tray around inside of the TR closet to allow cables to be routed within the room. Consider ease of access to the tray system when the building is in full operation. Limit cable tray routing to be above corridors, common and similar areas. Where ceilings are exposed or inaccessible, then provide a bridge of equivalent conduit connecting the cable trays in the accessible ceiling areas. Do not load the cable tray and raceway system to more than 40% of what is allowed by cable fill requirements of NFPA 70.

VOICE / DATA DROPS

Each voice/data outlet location, or "drop," shall consist of a 4-11/16" x 4-11/16 x 2.5" box with a 5/8" single gang mud ring and one, 1" conduit stubbed into an accessible ceiling space, or the nearest cable tray. Conduit runs will be no longer than 150' and have no more than two, 90-degree bends without a pull box. Exact locations shall be coordinated with the users during design. Each standard drop consists of two category 6A cables per outlet location. Within each drop may be installed up to four cables for voice and data per location. Wireless access points shall be located throughout the building for complete wireless coverage within the building. Each wireless access point location will have two category 6A cables. Wireless access point locations will be provided by a heat map. Each CCTV camera will have one category 6A cable.

GENERAL STRUCTURED CABLING SYSTEMS

Voice-data cabling (structured cabling systems) will include four pair UTP small diameter category 6A station cabling, fiber backbones, all terminations, wall plates, fiber termination panels, copper patch cables, racks and wire management. The installer of the voice and data cabling system will have on staff a BICSI-certified RCDD and all on-site installers shall be at least BICSI Level II (or equivalent) and manufacturer certified. In addition, the installer shall provide a warranty for the complete installation through the installed connectivity/cable manufacturer warranty program. Every strand of fiber and every conductor of copper will be tested in full compliance with the current ANSI/TIA/EIA 568.C standards. All fiber will be tested at all applicable windows for single and multi-mode cables.

HORIZONTAL CABLING

Horizontal cabling will be provided from each voice-data outlet to the nearest TR on the same building level. All horizontal cable specified for connections, both voice and data, will be category 6A UTP plenum rated cable and will be terminated to category 6A compliant RJ-45 (8p8c) patch panels and faceplate modules. A typical voice/data drop will consist of two cables; however, more may be required for specific applications.

WIRELESS NETWORK

Commonly occupied building areas, and immediately-adjacent outdoor areas, shall be provided with reliable wireless coverage. Provide data outlets at designated locations for wireless access points to cover all interior areas as well as to spill-out into all immediately-adjacent outdoor areas. Wireless access point data outlets shall consist of two category 6A data jacks mounted on a single gang wall plate or surface mount box. The existing wireless system is not current technology and needs to be replaced with a new Wi-Fi 6e (802.11ax) system to support multiple users with high bandwidth ability to the edge device. This Wi-Fi system will improve speeds and efficiency specifically in the number of streams supported, as well as bi-directional functionality.

6 PLAZA + SITE

SUMMARY + OBSERVATIONS

The ambitions of the 2024 Plan include re-thinking the existing entry plaza. Currently the plaza is difficult to use for its intended purposes and fails to integrate the lower sunken plaza of UMOCA with the street level plaza of Abravanel Hall. As such, each of the five key areas for improvement recommended in the 2016 Master Plan have been updated with information gleaned from the stakeholder outreach sessions.

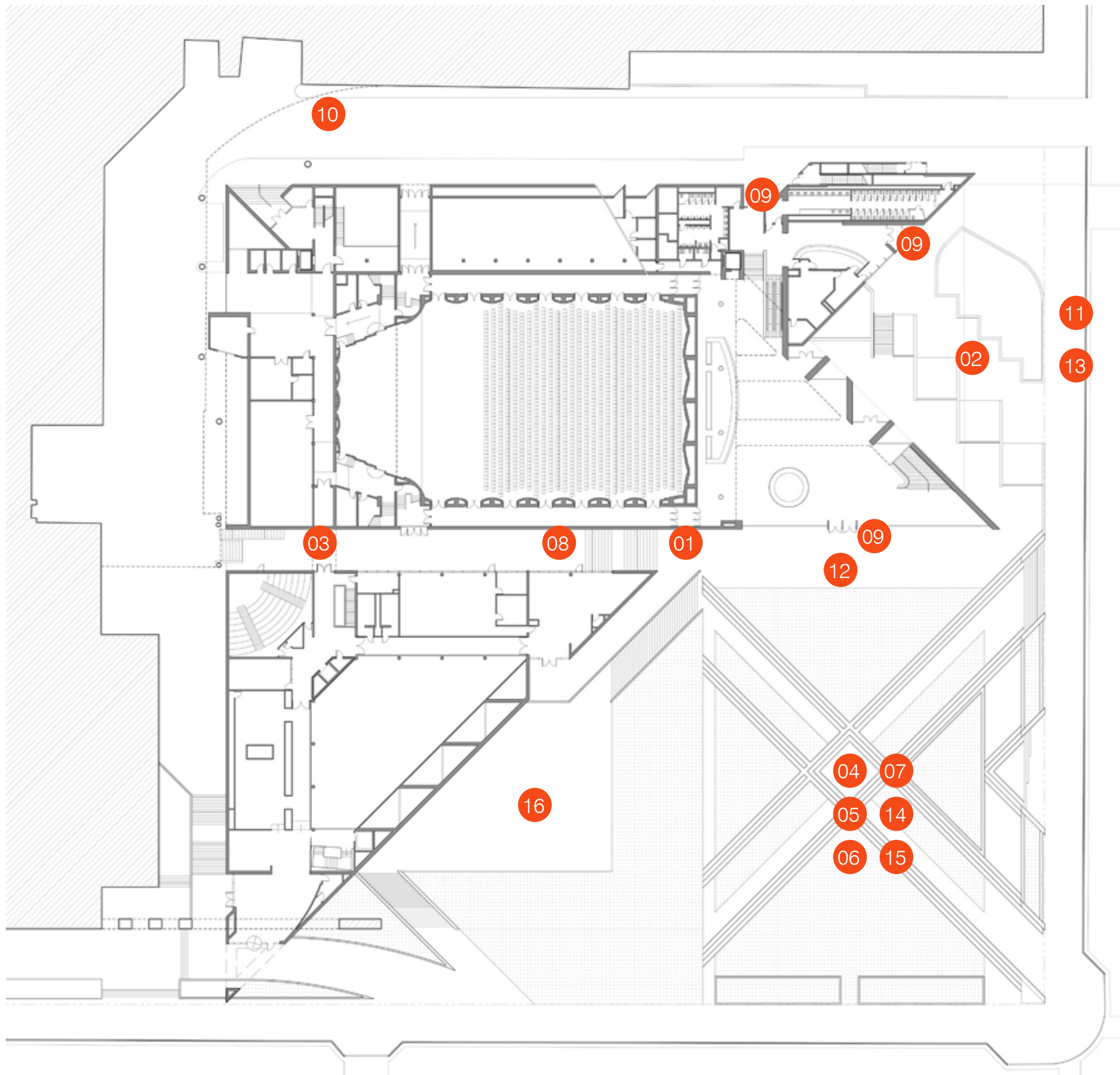
1. *Community Interaction + Involvement:* The plaza should seamlessly integrate the current UMOCA and Abravanel Hall plazas into a singular shared space that provides adequate space for informal gatherings or individual relaxation. Educational opportunities in the plaza should be considered so as to bring the activities happening within Abravanel Hall and UMOCA into the public realm. Programmed events are not anticipated to occur with much frequency, and any that do should be of limited scope.

2. *Replacement of the Fountain:* There is no desire from the Ownership or stakeholders to replace the fountain.

3. *Landscaping + Pedestrian Comfort:* The landscaping should reflect the environment we are in – a semi-arid foothills ecoregion (19F) – and serve as an example for contextual landscape design. Benches and other pedestrian scale elements should be provided to make the plaza a welcoming and comfortable place to rest.

4. *Infrastructure:* Power and communications grid infrastructure should be provided to accommodate events and help foster a pleasant atmosphere during and before events inside the Hall.

5. *Pedestrian Circulation:* Natural pedestrian paths and formalized paved walkways should be aligned to avoid “cow-trails” and their associated maintenance concerns. Circulation paths should also be designed in a way to allow for easy access to the front doors of Abravanel Hall from the major entry points along the site. The entire plaza should be accessible to those with specific mobility needs.

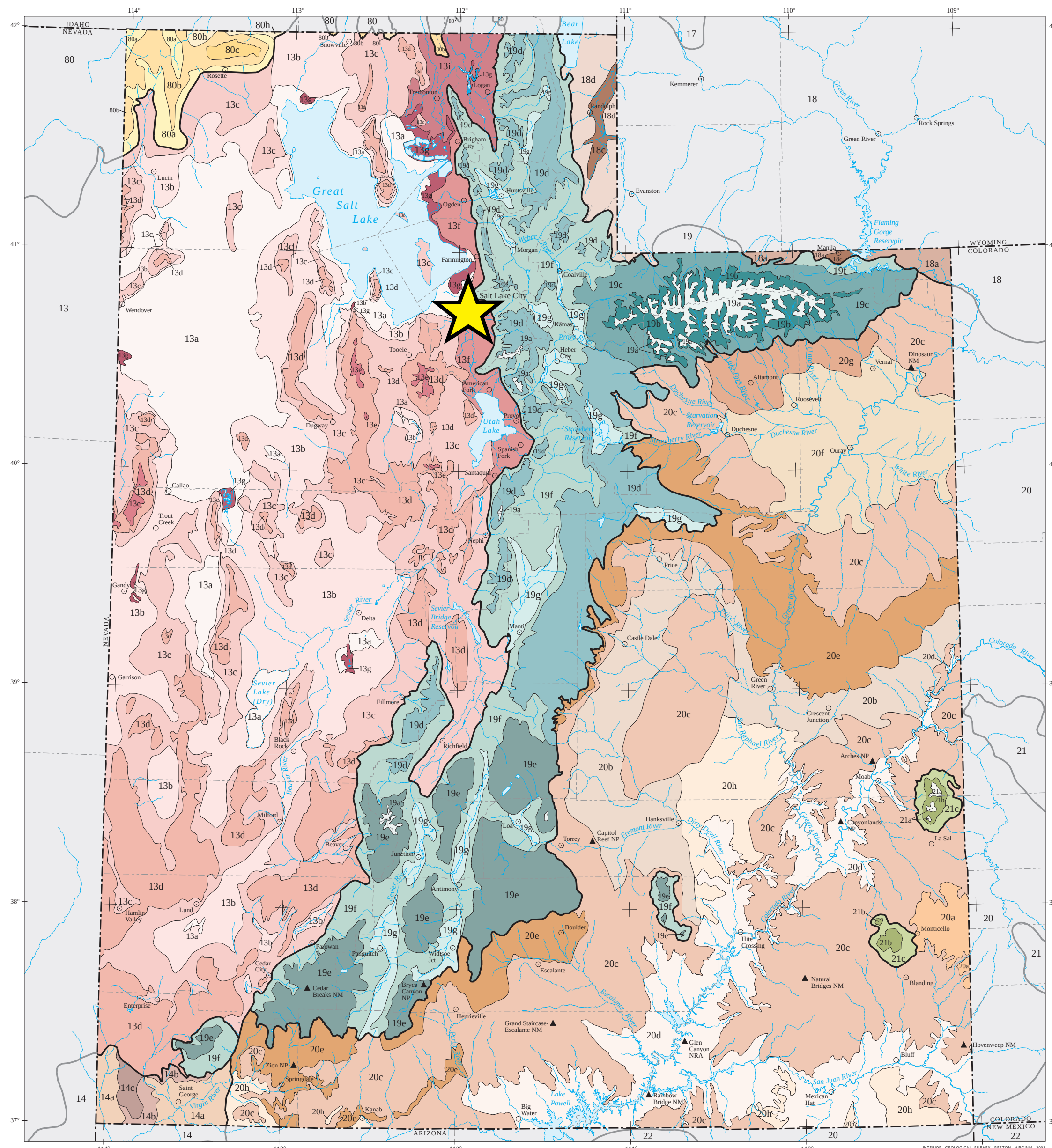


OBSERVATIONS:	RECOMMENDATION:
1. The exterior lighting of the building is simplistic and not programmable.	• Provide new LED exterior lighting systems that can change color and are easily programmable.
2. North plaza is severely underutilized.	• Most likely location for a future lobby addition.

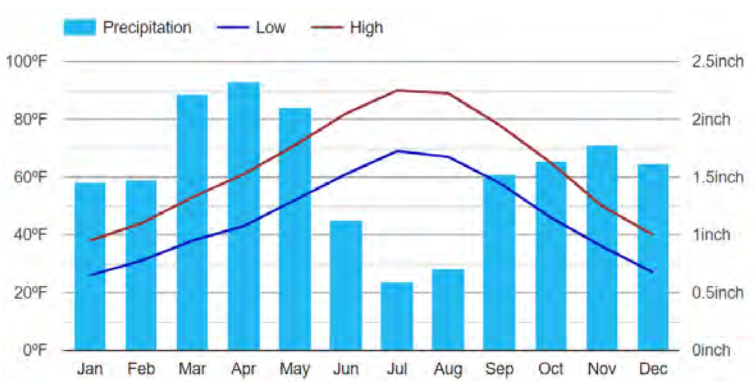
OBSERVATIONS (continued):	RECOMMENDATIONS (continued):
3. The only connection between UMOCA and Abravanel Hall is a small skybridge that connects the back of house.	• A non-public shared atrium between UMOCA and Abravanel Hall should be explored to create opportunities for shared artist and staff connections between the two buildings.
4. The plaza does not feel like a public space and people are uncertain if they can congregate there.	• Add better seating and informal gathering areas to engage the public.
5. There is a lack of art or signage that helps to signify that the plaza is part of an "arts campus."	• Provide digital signage in the plaza and coordinate with the Art in Public Places program for public art opportunities. See Public Art discussion above.
6. Current speaker system is difficult to maintain and outdated.	• Refer to Extended Integrated Technology section below.
7. The plaza doesn't support community events or small performances sufficiently.	• Provide dedicated areas for performances and design access areas to accommodate fork-lift loads. The design team should consider infrastructure to support food trucks.
8. The installed snow melt system limits what activities can occur on the plaza and can only be used intermittently.	• Provide a snow melt system that is as energy efficient as possible and that is not going to be crushed by fork-lifts.
9. There are too many entry points to the lobby that don't feel connected.	• Consolidate entrances as possible. Explore options for having all entrances ADA accessible and directly accessing the main lobby floor.
10. Parking is inadequate for building staff.	• Refer to Extended Parking discussion below.
11. There is no good location to drop off patrons. This situation is especially problematic during the winter because of weather and because Temple Square draws a large crowd for Christmas lights and programming.	• Refer to Extended Parking discussion below.
12. Glass is vulnerable to breakage from security threats.	• Consider adding bollards in front of glass for added security; alternatively, provide landscaping and barriers at the plaza perimeters that discourage large-scale security threats.
13. There is no dedicated bus drop-off area for student groups.	• Refer to Extended Parking discussion below.
14. There is not adequate Wi-Fi service in the plaza if it is to be used more frequently for events.	• See Extended Integrated Technology discussion below.
15. Landscaping feels very suburban and does not meet County water-wise goals.	• Consider re-landscaping the plaza with native species and minimizing lawn areas. Pay careful attention to the final design so as not to make an uninviting wasteland of rocks and concrete.
16. The sunken plaza feels desolate and is rarely used by either UMOCA or the public.	• Consider opportunities to tie the sunken plaza to the larger plaza more organically and provide permanent fixtures to make the space a destination. Provide ADA access to the sunken portions of the plaza.

ECOREGION + CLIMATE

The project site is located in the 19f Semiarid Foothills Ecoregion, which is found between 5,000' and 8,000' elevation. Widely-spaced juniper and pinyon trees typically occur in a matrix of sagebrush, grama grass, mountain mahogany, and Gambel oak. Maple-oak scrub is common in the north but, southward, it is generally replaced by pinyon-juniper woodland at lower elevations and ponderosa pine at upper elevations. Overall, the vegetation is distinct from Ecoregion 19g, which is lower and drier, and Ecoregions 19d and 19e, which are higher and wetter.



Elevation: 4,265'
Annual Precipitation: 18.57"



SPARANO+MOONEY ARCHITECTURE
SALT LAKE COUNTY

INTEGRATED TECHNOLOGY

DISTRIBUTED IMMERSIVE AUDIO:
In an effort to activate the plaza and enhance the connection with UMOCA, we are recommending the implementation of a plaza-wide immersive audio system that can serve as an "audio canvas" for the Symphony, UMOCA, and visiting artists who have installations within the plaza. Loudspeakers would be integrated into the landscaping at strategic locations to provide audio zones in a particular area. Each zone would serve as a canvas that could host different audio soundscapes and content.

We would recommend planning out two types of programming for these audio zones:

- Day-to-day soundscapes: We would recommend engaging a sound artist to create soundscapes that can run while the plaza is open to the public and spark interest from passersby. We would recommend working with sound artists to create content that is inspired by the context and history of the site in order to provide an educational component to the experience.
- Artist Canvas: The immersive audio zones associated with plaza areas that will have rotating art pieces will also be available to visiting artists to create a unique soundscape to accompany their piece. A template for that audio zone can be provided to the artists to create the content off-site, then when ready, implement it on the plaza.

PORTABLE "WALL CAST" SYSTEMS:
An opportunity to activate the plaza and bring the experience of the Symphony to other parts of the city is through a portable "wall cast" system that can be used to livestream performances within Abravanel Hall. This system would include:

- Portable LED wall that can be located at various points within the plaza or loaded onto a truck and transported to other parts of the city.
- Portable loudspeaker system that can accompany the LED wall and provide a high-quality listening experience for the remote audience.
- Mobile network equipment that can utilize 5G wireless networks to communicate with the Abravanel Hall broadcast system.

OUTDOOR EVENT INFRASTRUCTURE:
Power, network, and audiovisual connectivity will be provided at strategic locations on the plaza for temporary, outdoor events. When these events occur portable loudspeakers, projectors, lighting, etc., would be brought in for the specific programming.


Landscape-integrated loudspeakers


Portable broadcast systems at the New World Symphony

PARKING

Visitors to Abravanel Hall rely mainly on public transportation and the surrounding parking structures for parking. While this scenario is typical for urban locations, Abravanel Hall specifically is undeserved in accessible parking, employee parking, and drop-off locations. Because of the surrounding site constraints, increasing this capacity is limited.

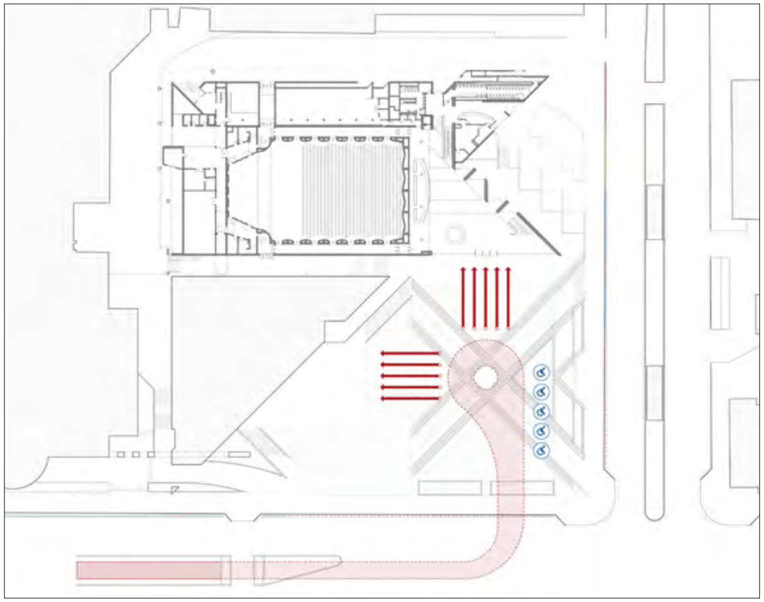
Option 1
Increased Drop-off Zones
Option one suggests converting the current bus parking lanes on West and South Temple into drop-off zones through cooperation with the city. These lanes could either be moved permanently or alternate with drop-off zones based on event schedules. While this might create more drop-off points, it doesn't solve other parking issues on the site. Also, relocating bus drop-off/pick-up spots isn't easy and would require further discussions with UTA and Salt Lake City to determine feasibility.

Option 2
Underground Parking Below Abravanel Hall
The second option seeks to address all the parking considerations through the creation of an underground parking structure below the existing Abravanel Hall plaza. This strategy would mitigate many of Abravanel Hall's and UMOCA's parking deficiencies and could be expanded as funds would allow.

At a minimum, it would be recommended to provide a drop-off area, employee parking stalls, and accessible parking stalls below the plaza (refer to Test Fit Documentation for one possible layout).

A more extensive approach would include multiple levels with enough parking to serve the entire venue. Access to the parking structure could be through the existing parking ramp on West Temple that provides access to the City Creek parking structure. The LDS Church has indicated they plan to continue building underground parking in the surrounding developments, and so a below-grade parking structure underneath the plaza could tie into that larger network.

Because the City Creek and other LDS Church-owned parking structures in the area are not open on Sundays, an additional benefit of a more extensive parking structure below Abravanel Hall is that could service the area on Sundays when the surrounding parking operations are closed, providing a potential revenue-generating source.

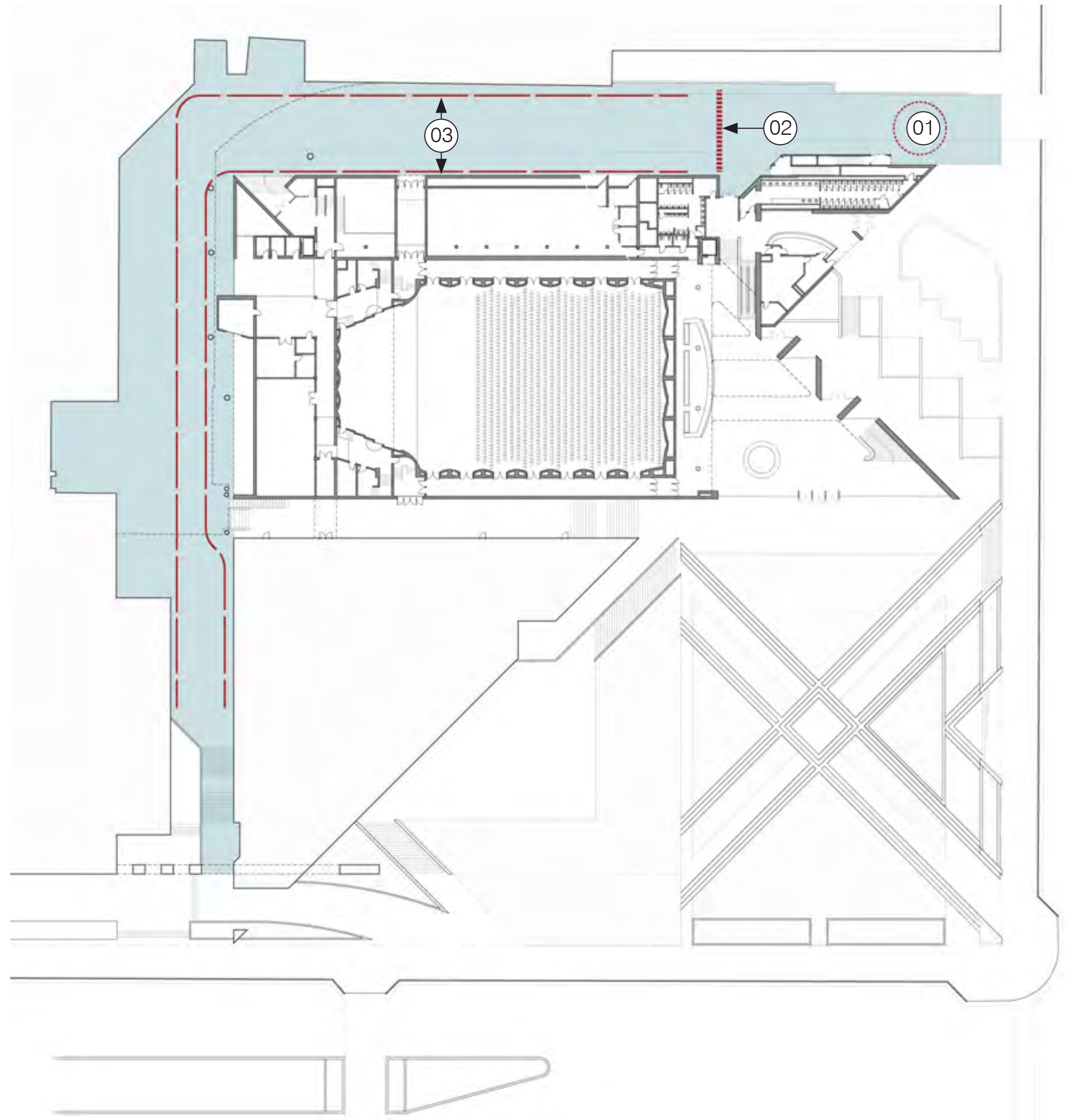


EGRESS AT BACK ALLEY

The alley between the Salt Palace and Abravanel Hall (area highlighted in image to right) is considered as a public way. According to the UBC (the enforced code standard at the time the convention center was constructed), a "Public Way is any street, alley or similar parcel of land essentially unobstructed from the ground to the sky which is deeded, dedicated or otherwise permanently appropriated to the public for public use and having a clear width of not less than 10 feet." This designation allows occupants who are exiting the buildings to be considered "safe" upon entering the alley. The City of Salt Lake required the following features to be incorporated into the alley and it is our assumption that any modification to Abravanel Hall will require the same accommodations if they have not already been completed.

- Provide additional fire alarm speakers and strobes, connected to the convention center fire alarm system, at the entrance of the alley by South Temple Street.
- Gate is to be connected to the convention center fire alarm system. When an alarm in the convention center goes off, the gate is to automatically open. The gate must remain in the open position until it is manually placed back to normal operation.
- Provide signs along both sides of the alley and facing both approach and departure directions starting at the entrance of the alley from South Temple at 50' intervals. Signs must read "NO PARKING – FIRE LANE" and comply with IFC Figure D103.6.

The original code report was generated by CCI and a similar report may be required to supplement design documentation for any remodel or addition.



PROGRAM TEST FIT

7

SUMMARY

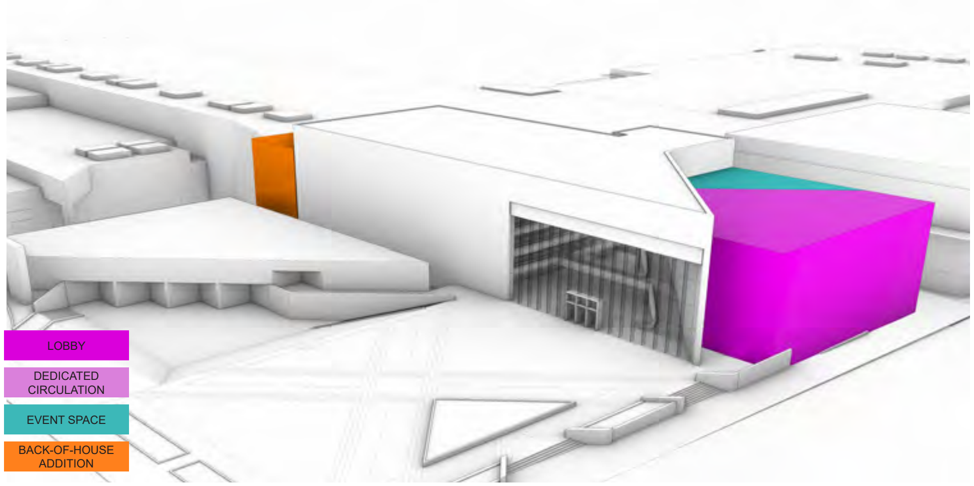
The test fit options below represent two strategies for achieving the requirements developed through the master planning process. The illustrations for each option vary slightly in actual gross square footage achieved as a full design with the granular detail developed above is outside of the scope of a masterplan. Further design phases will reconcile the preferred option with the ideal space lists contained throughout this document. A summary of those space requirements are listed in the chart below.

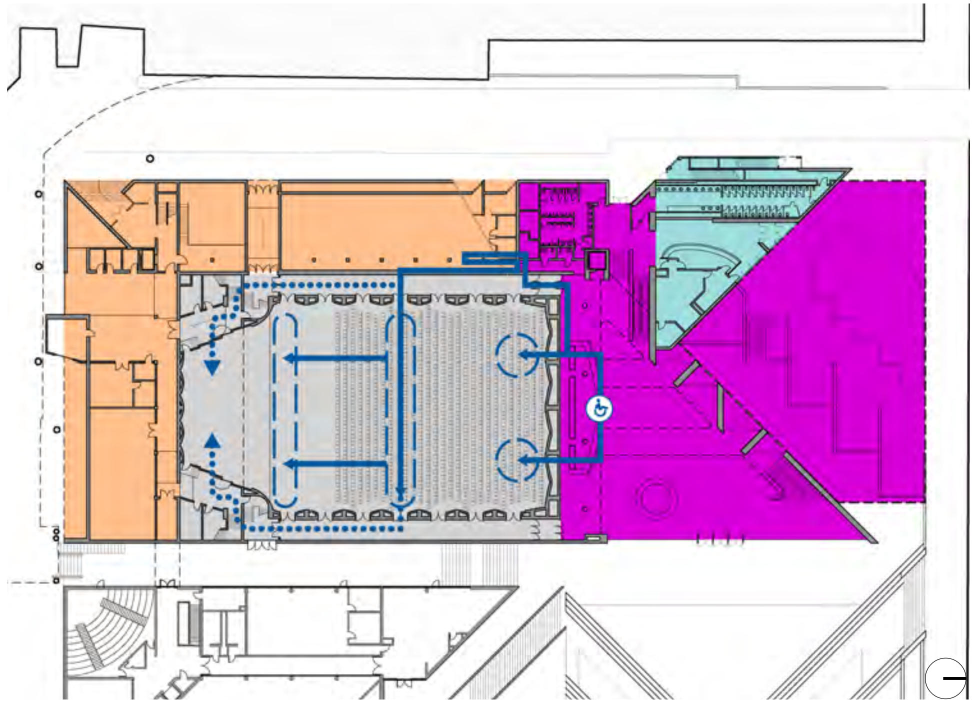
The two options below differ mainly in their approach to increasing the public areas and front-of-house services. Option A expands the building into the North Plaza in order to maintain the architectural character of the principal facade that faces east. Option B expands the building into the East Plaza to take advantage of the prominence of that plaza. A breakdown of the key features and limitations of each strategy are listed in the summary page for each option. Upgrades to the remaining program areas and site strategies are consistent between the two options.

Color	Ref	Program area	Existing NSF	Proposed NSF
	10 000	Public areas	22,504	47,206
	20 000	Performance spaces	29,225	33,607
	30 000	Stage support	4,435	10,126
	40 000	Performer support	3,766	7,830
	50 000	Rehearsal	220	4,769
	70 000	Administration	4,902	6,244
	80 000	Services	1,489	2,855
		Net Square Foot Total	66,541	112,637
		Gross Square Foot Total	118,000	160,000

Venue	Seating capacity
Concert hall	2788 (existing)
Total	2,768

OPTION A





LOBBY AREA INCREASE

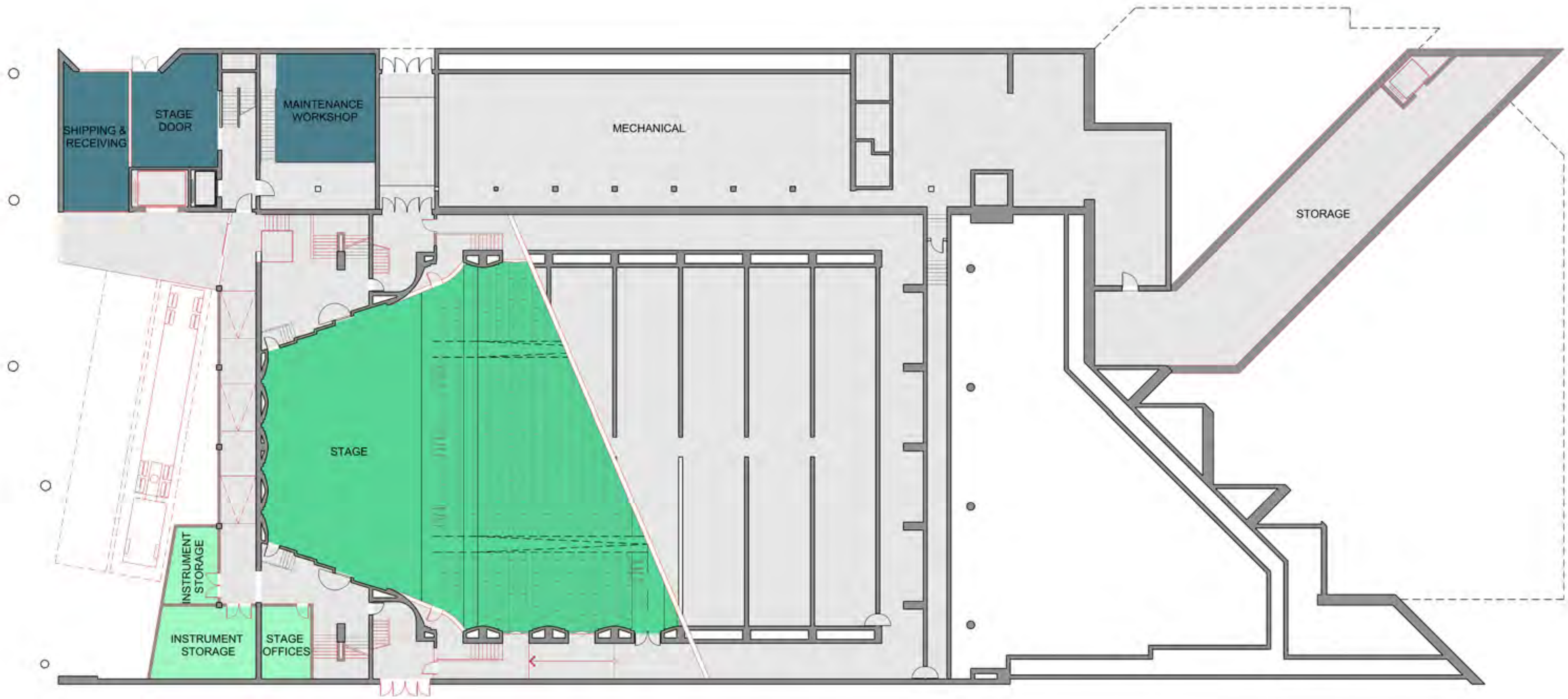
KEY FEATURES:

- A possible connection from Hall lobby to UMOCA rooftop and Salt Palace
- Increased lobby size allows for improving flow and lobby activation possibilities
- Minimal impact on architectural expression of existing building from east
- Expansion provides opportunity for lobby-size increases in tier levels to the north, including possible social event space on Third Tier, if feasible
- Cost-effective restroom count increase by expanding existing plumbing to the north, rather than adding new plumbing to the east
- The addition captures north courtyard space that is rarely used and brings entire lobby onto a single level
- Ability to add a storage level under lobby addition

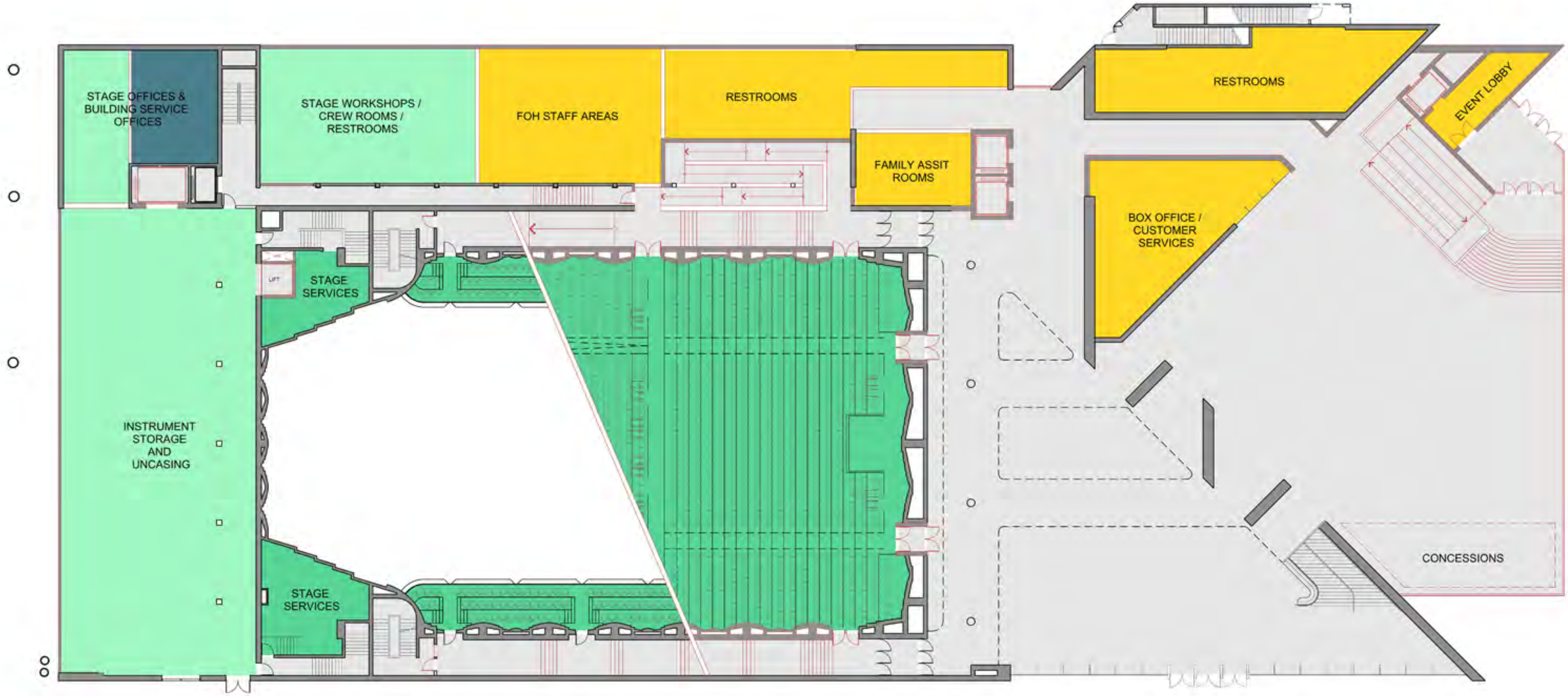
KEY LIMITATIONS:

- No Hall accessibility provided through east side of auditorium. Limited alley infill is possible to provide eastern access at orchestra level
- Lobby size for patron flow and activation below recommended target
- Connection to UMOCA and Salt Palace would occur in a future phase with only back-of-house or hallway connection to Abravanel Hall

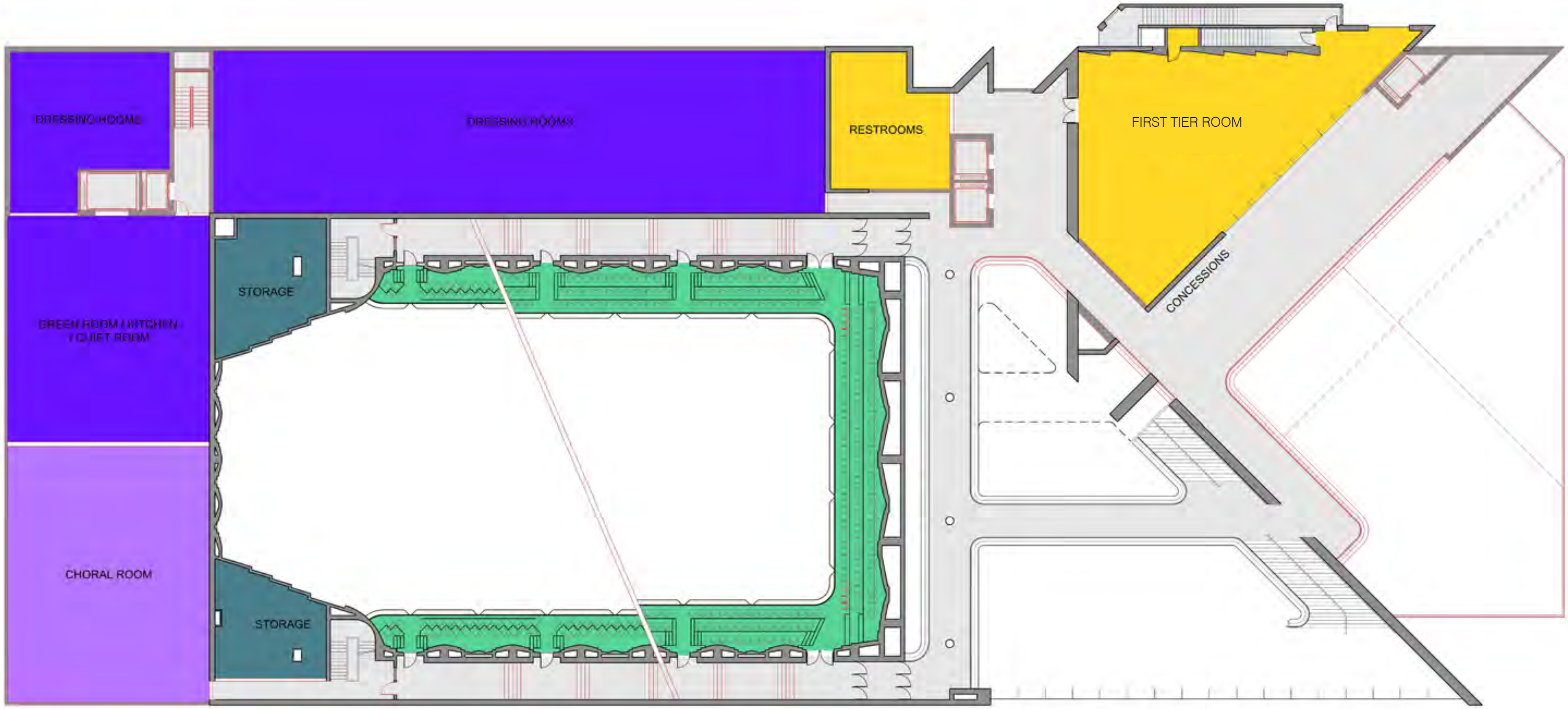
STAGE LEVEL


SHIPPING & RECEIVING
STAGE DOOR
MAINTENANCE WORKSHOP
MECHANICAL
STORAGE
STAGE
INSTRUMENT STORAGE
INSTRUMENT STORAGE
STAGE OFFICES

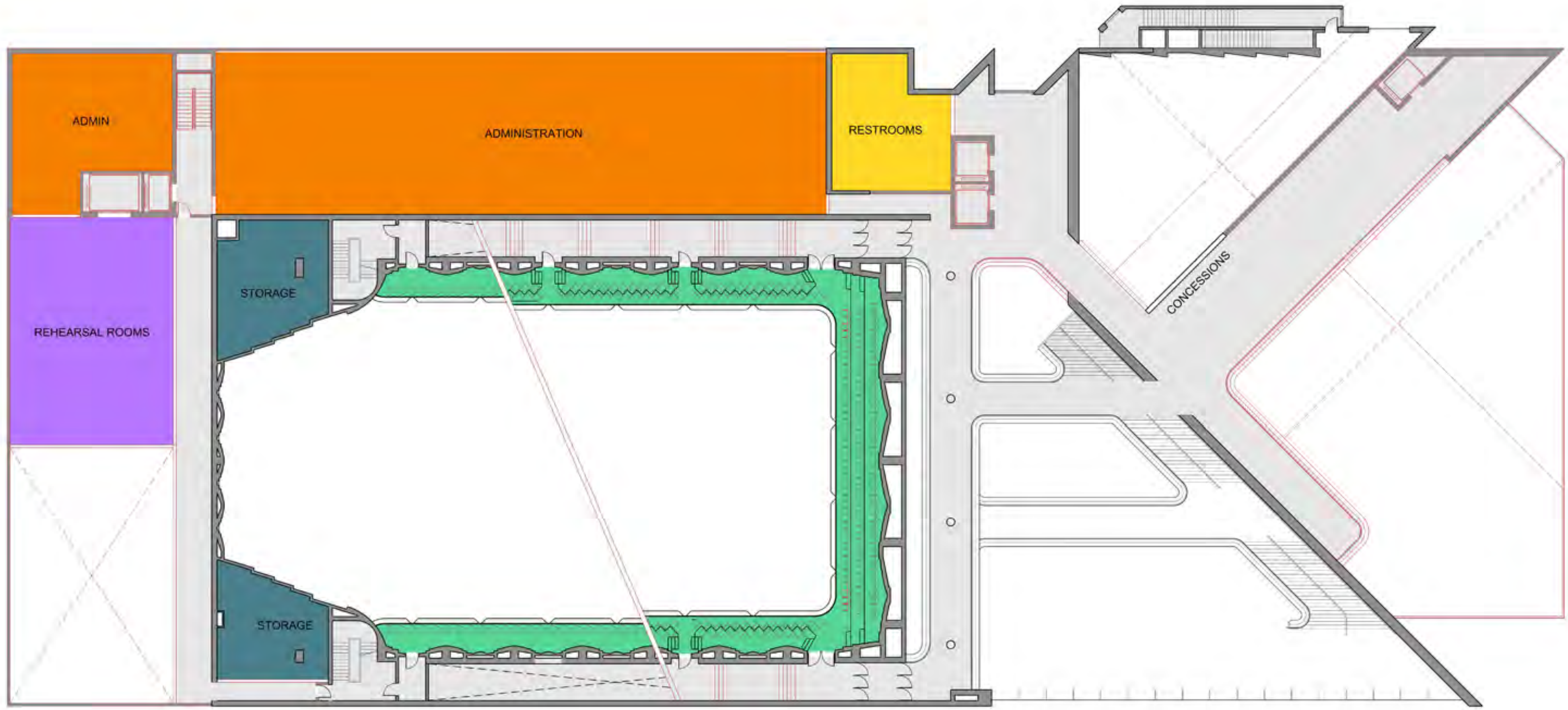
MAIN LOBBY LEVEL



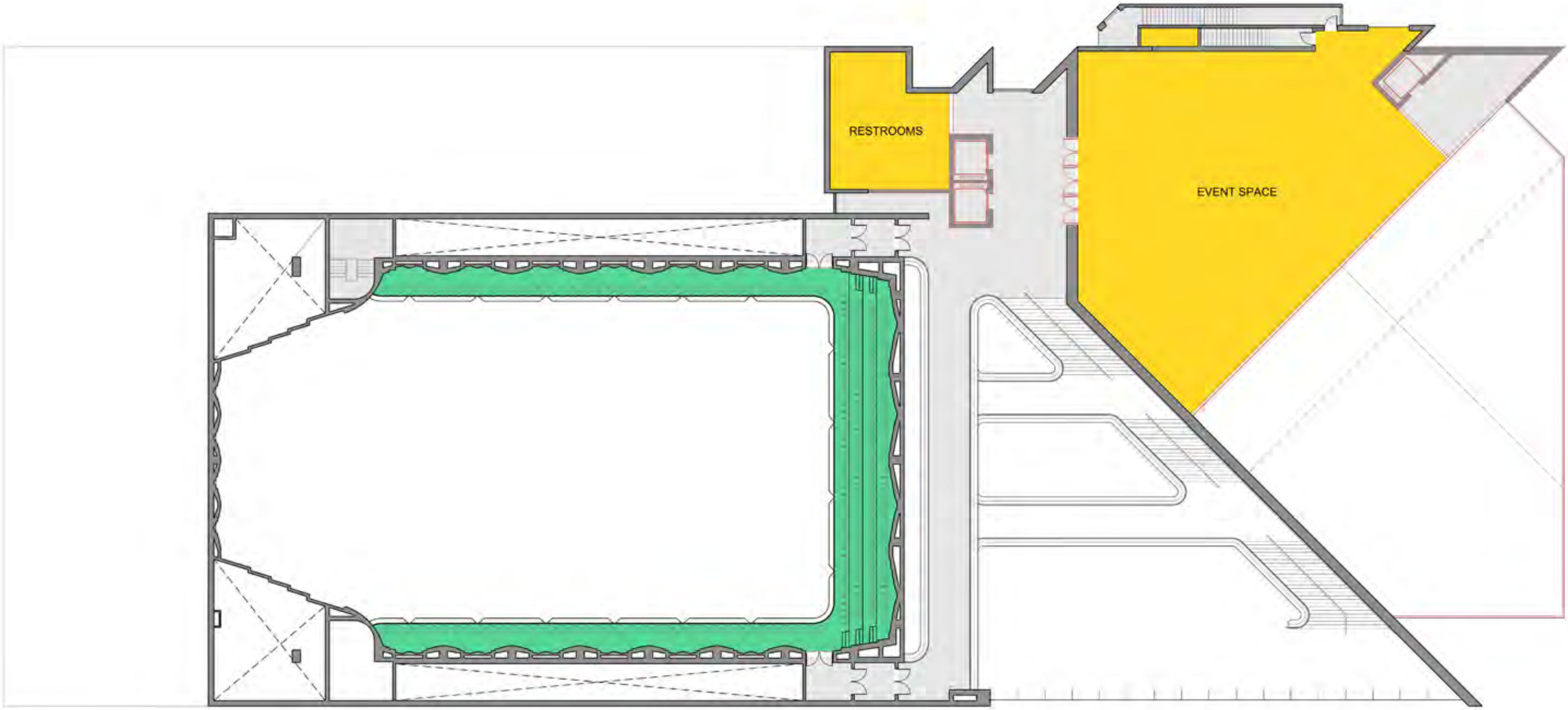
1ST TIER


DRESSING ROOMS
DRESSING ROOMS
RESTROOMS
FIRST TIER ROOM
STORAGE
GREEN ROOM / KITCHEN / QUIET ROOM
CONCESSIONS
CHORAL ROOM
STORAGE

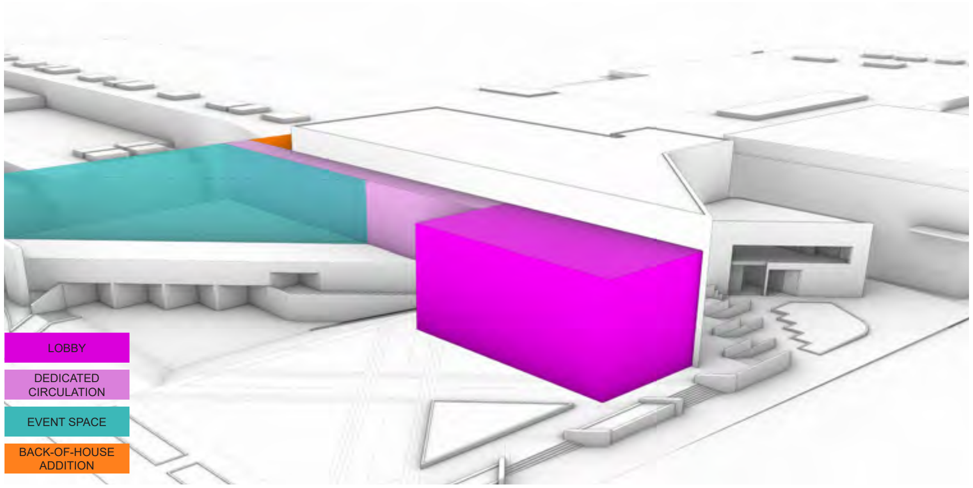
2ND TIER

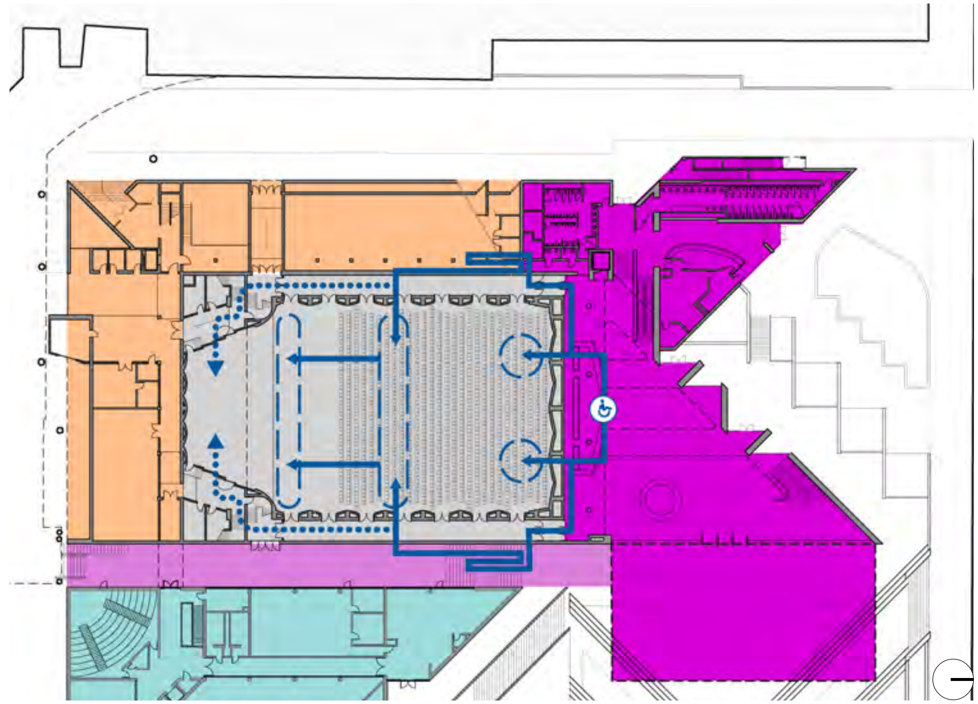

ADMIN
ADMINISTRATION
RESTROOMS
REHEARSAL ROOMS
STORAGE
STORAGE
CONCESSIONS

3RD TIER

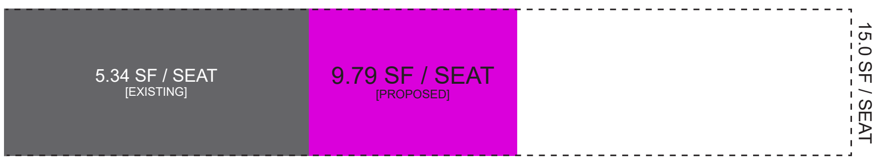


OPTION B





LOBBY AREA INCREASE



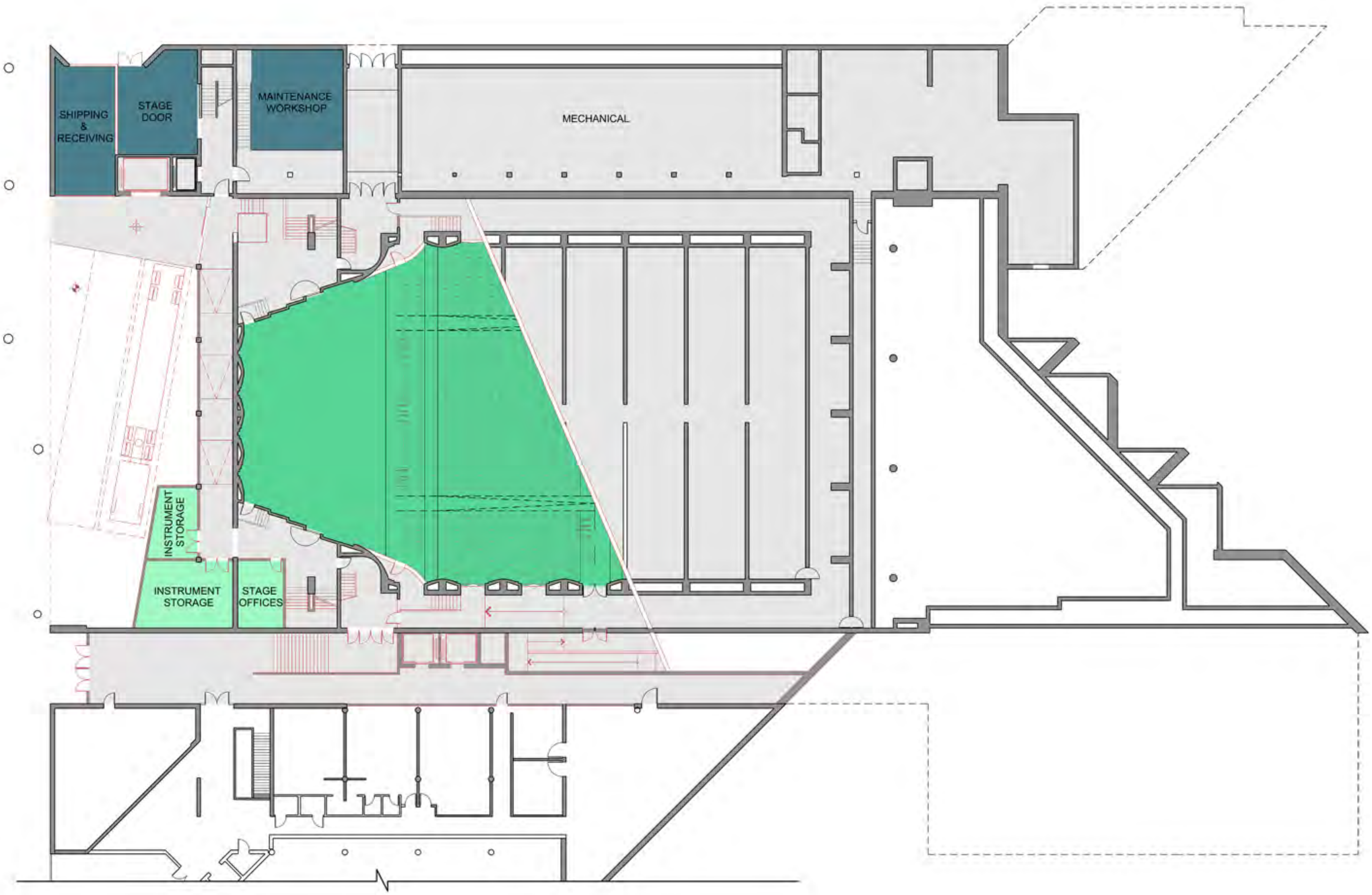
KEY FEATURES:

- Accessibility is provided from both sides of the Hall at all levels
- Connection from lobby to the future UMOCA rooftop amenity and Salt Palace
- Connection to UMOCA building for shared concessions area possible (may allow for alcohol service)
- Increased lobby size facilitates improved flow and lobby activation possibilities
- Expanded lobby matches scale of existing lobby

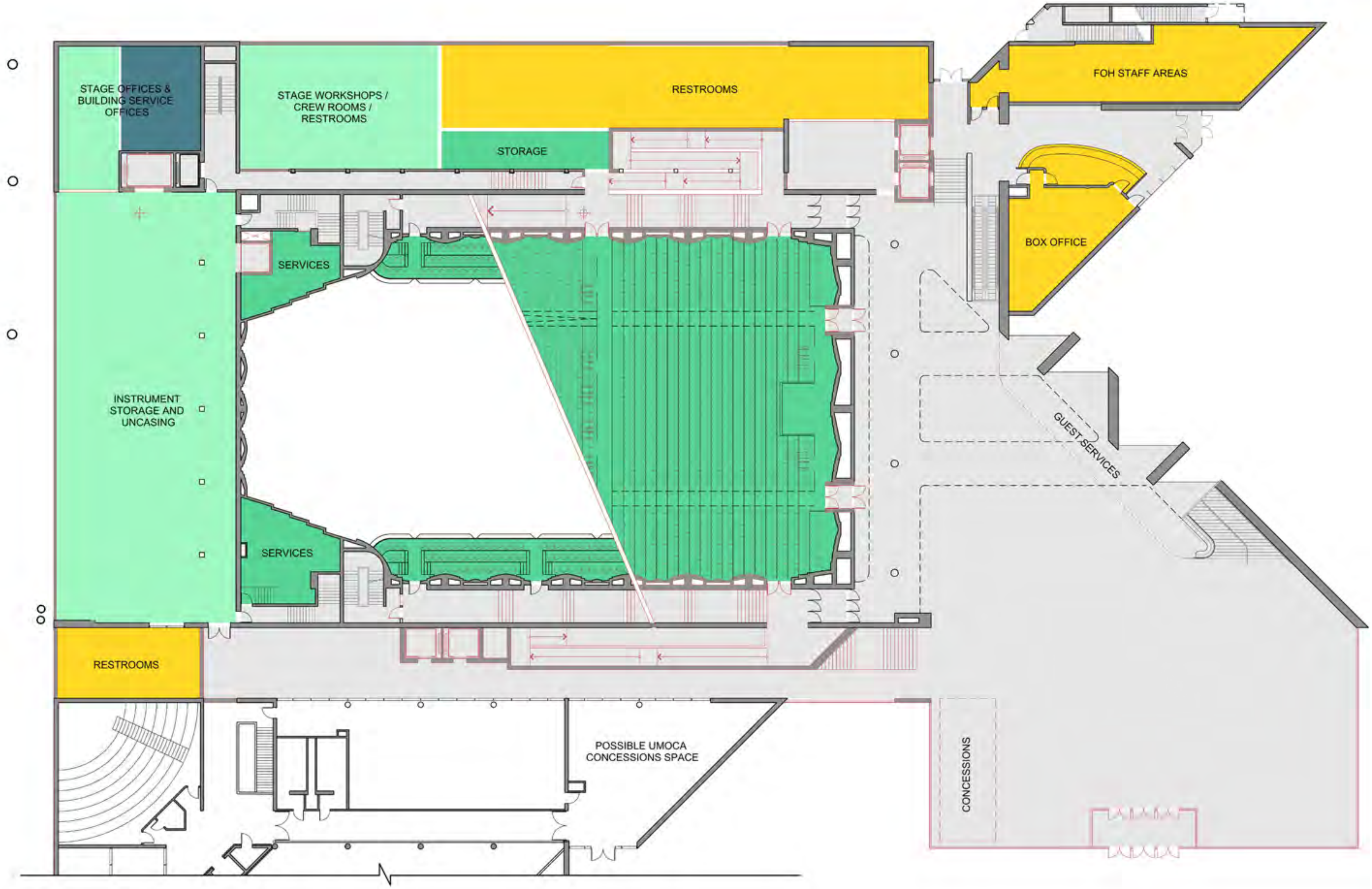
KEY LIMITATIONS:

- Lobby size for patron flow and activation below recommended target
- Changes to lobby address some, but not all existing accessibility, wayfinding, and lobby activation challenges in northwest lobby area
- Iconic architectural expression of existing building could be potentially impacted by addition

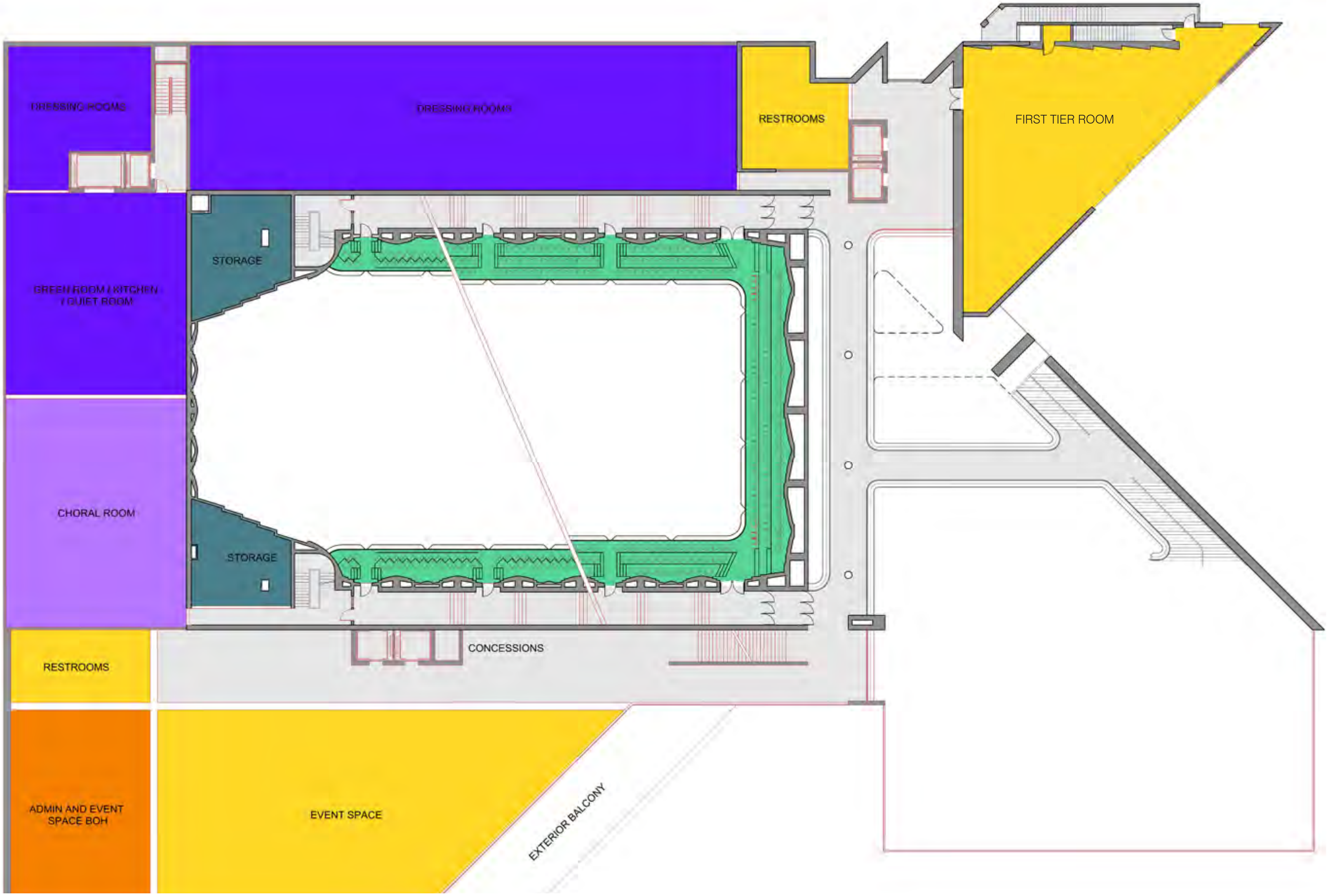
STAGE LEVEL


SHIPPING & RECEIVING
STAGE DOOR
MAINTENANCE WORKSHOP
MECHANICAL
INSTRUMENT STORAGE
INSTRUMENT STORAGE
STAGE OFFICES

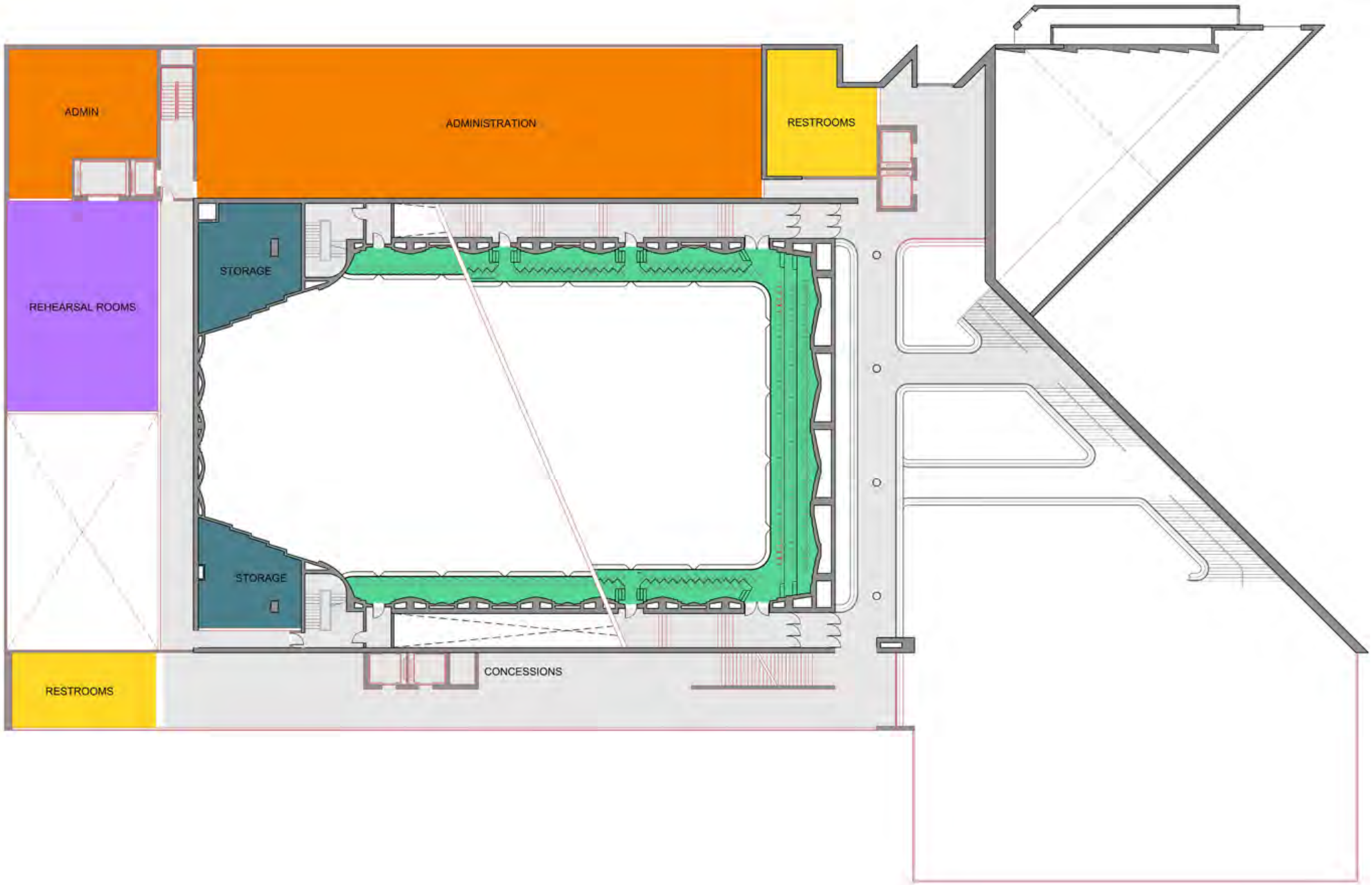
MAIN LOBBY LEVEL



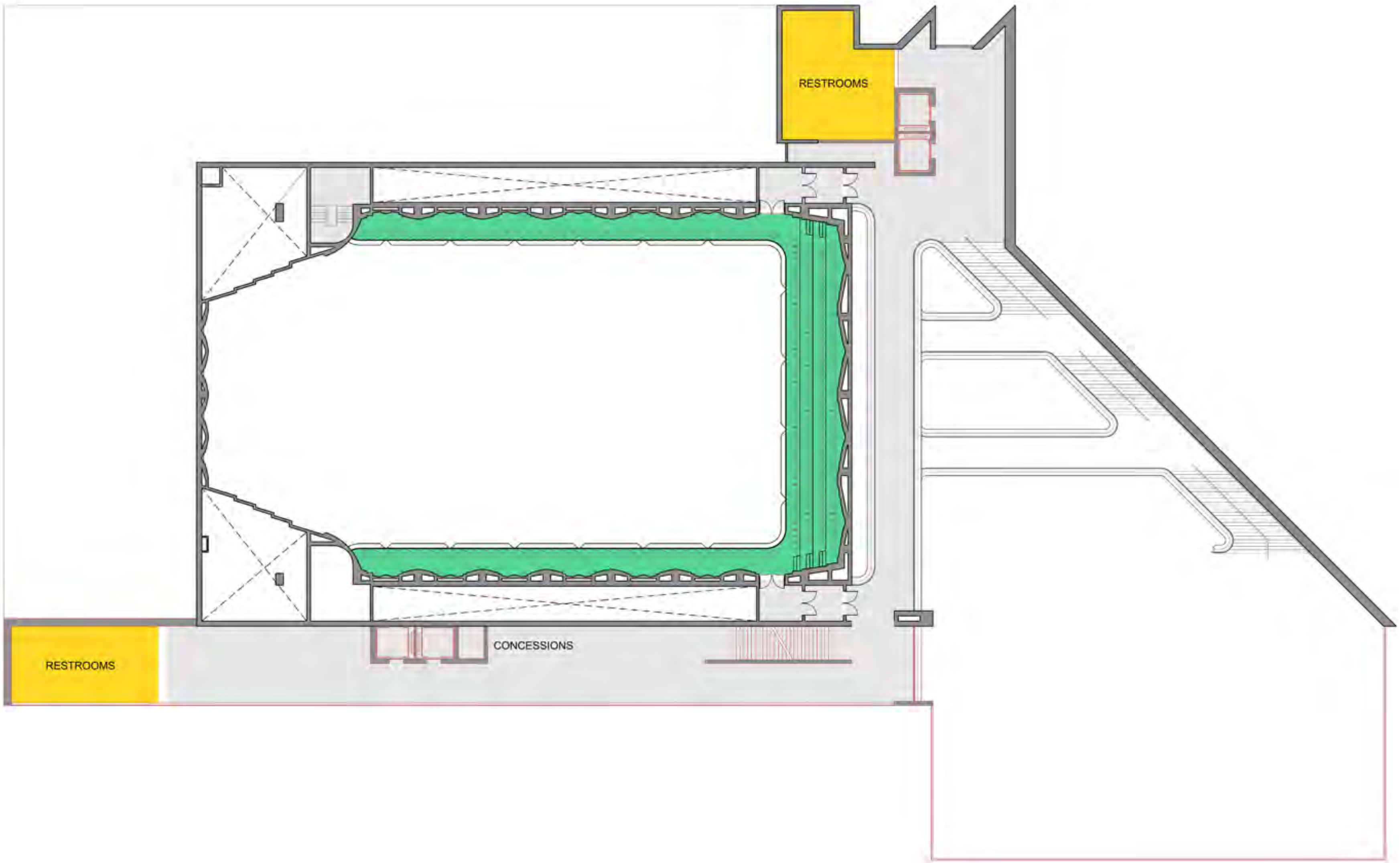
1ST TIER


DRESSING ROOMS
DRESSING ROOMS
RESTROOMS
FIRST TIER ROOM
STORAGE
GREEN ROOM / KITCHEN / QUIET ROOM
CHORAL ROOM
STORAGE
CONCESSIONS
RESTROOMS
ADMIN AND EVENT SPACE BOH
EVENT SPACE
EXTERIOR BALCONY

2ND TIER


ADMIN
ADMINISTRATION
RESTROOMS
STORAGE
REHEARSAL ROOMS
STORAGE
RESTROOMS
CONCESSIONS

3RD TIER

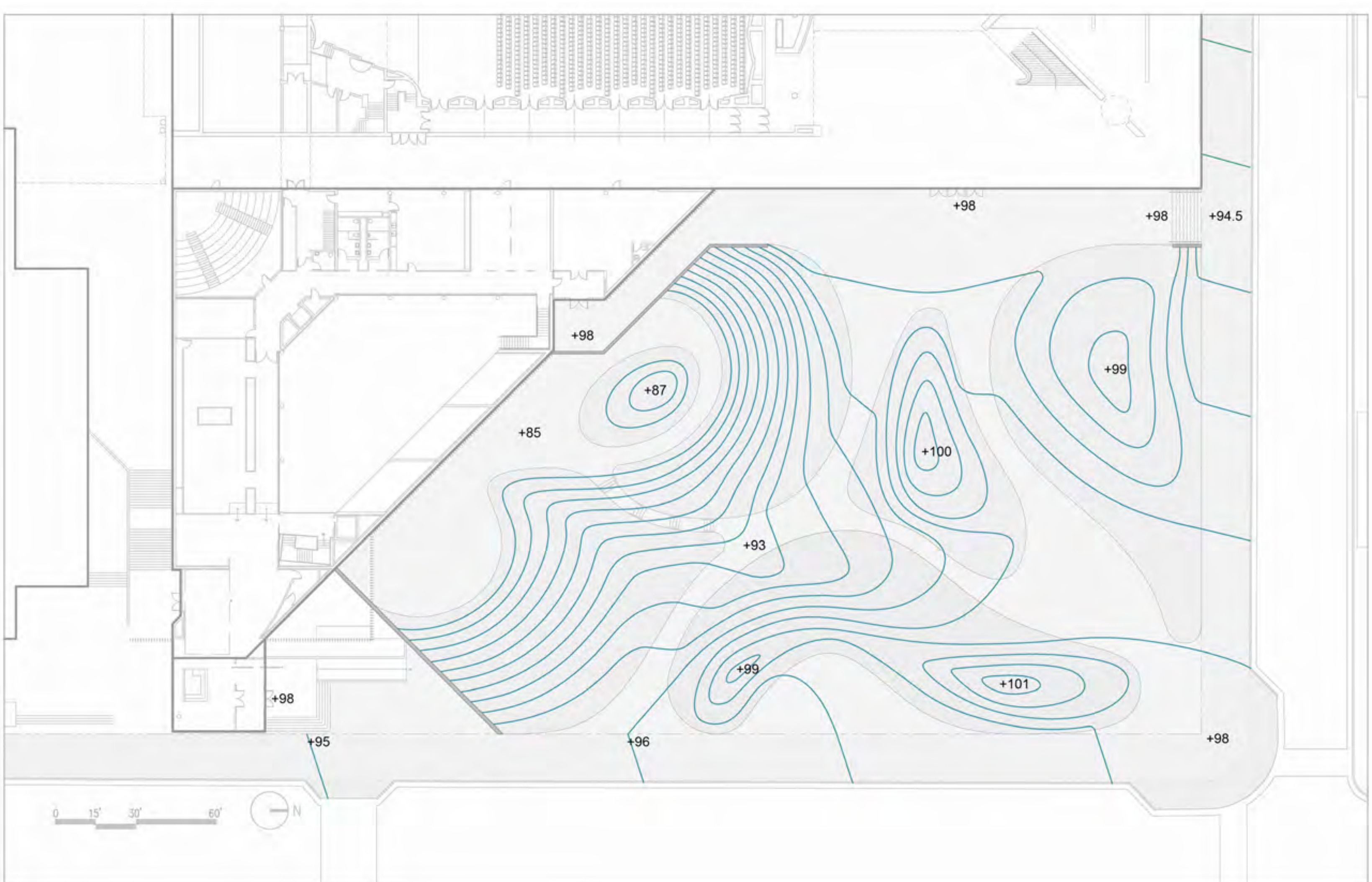


PLAZA DESIGN

The proposed alterations to the landscape re-imagine the entire parcel as a singular, unified open space befitting this important County parcel in downtown Salt Lake City. The proposed landscape design, which evokes the native desert landscape surrounding Salt Lake City, brings to the city center an inviting and accommodating green space with stronger edges at the sidewalks and much needed shade – along with well-located seating, an interactive playscape, and opportunities for numerous sculptures – creating a welcome respite from the city streetscape.

CIRCULATION:
A network of flowing, curvilinear walkways is interwoven with gentle landforms to provide direct and intuitive connections to the primary UMOCA and Abravanel Hall entrances. The path system connects the open space and arts venues to and from important nearby connections: the Temple Square light rail station, the South Temple and West Temple sidewalks and intersection, and the nearby City Creek West parking facility.

TOPOGRAPHY:
Sculpted landforms are the primary space-making elements and reinforce the path network throughout the parcel. These pathways establish an entirely new personality for this landscape, creating a dynamic spatial experience between street edges and the primary building entries. Gentle, undulating landforms effectively merge the current two-level condition into one, resulting in a unified site and continuous landscape. Plantings further reinforce this system.



AMENITIES:
The new landscape provides spaces for planned and impromptu events for a range of uses, for various sized events, and for all ages. A range of amenities will round out the comfort and usability of this space, with seating, lighting, bicycle racks, recycling and waste receptacles, and other site furnishings. Designated spaces for permanent and rotating sculptures are included. Finally, informational and wayfinding signage will enhance safety and navigation throughout the landscape.

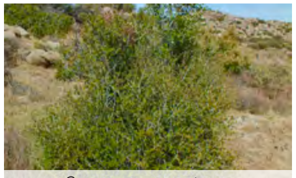
VEGETATION:
The horticulture of this new landscape is based on the surrounding high-desert landscape of precolonial Salt Lake County surroundings, responding to northern Utah's arid and increasingly-warmer climate. Purposefully-grouped shade trees amplify the spatial qualities established by the paths and topography, provide much-needed shade, and create places of various scale and characters throughout. Native grasses and ground cover plantings further enhance the landscape, with an emphasis on sustainable species to meet these challenging conditions, requiring less water and maintenance. The following page provides a representative plant palette.

TREES


Amalanchier utahensis
(Utah Serviceberry)


Acer grandedentatum
(Big Tooth Maple)


Cercocarpus ledifolius
(Curl Leaf Mountain Mahogany)


Cercocarpus montanus
(Alderleaf Mountain Mahogany)


Juniperus osteosperma
(Utah Juniper)


Juniperus scopulorum
(Rocky Mountain Juniper)


Picea pungens
(Blue Spruce)


Pinus edulis
(Pinyon Pine)


Pinus ponderosa
(Ponderosa Pine)


Populus tremuloides
(Quaking Aspen)


Quercus gambelii
(Gambel Oak)

SHRUBS


Artemisia nova
(Black Sagebrush)


Artemisia spinescens
(Bud Sagebrush)


Artemisia tridentata
(Big Sagebrush)


Ericameria nauseosus
(Rubber Rabbitbush)


Purshie tridentata
(Bitterbush)


Tetradymia canescens
(Horsebrush)

PERENNIALS


Achillea millefolium
(Western Yarrow)


Crepis acuminata
(Hawksbeard)


Lupinus spp.
(Lupine)


Phlox austromontana
(Desert Phlox)


Senecio integerrimus
(Groundsel)


Wyethia amplexicaulis
(Mule's Ears)

GRASSES


Bouteloua gracilis
(Blue Grama Grass)


Elymus cinereus
(Basin Wild Rye)


Elymus elymoides
(Bottlebrush Squirreltail)


Elymus smithii
(Western Wheatgrass)


Elymus spicatus
(Bluebunch Wheatgrass)


Festuca idahoensis
(Idaho Fescu)


Hesperostipa comata
(Needle-and-Thread Grass)


Koeleria macrantha
(Prairie Junegrass)


Poa secunda
(Sandberg Bluegrass)

SUMMARY:

Abravanel Hall Master Plan

Salt Lake City, Utah

ROM Program v24 Estimate

April 15, 2024

venue. the bottom line

venue. the bottom line

Abravanel Hall Master Plan

ROM Program v24 Estimate

April 15, 2024

Table of Contents

venue.

venue. the bottom line

Abravanel Hall Master Plan
ROM Program v24 Estimate
Introduction — **April 15, 2024**

Introduction

Sparano+Mooney Architecture commissioned Venue to provide an order-of-magnitude estimate for the Abravanel Hall Master Plan, Salt Lake City, UT. Venue submits this order-of-magnitude estimate as a cost model to assist in aligning program, scope, quality and budget.

Basis

S + M "24 0213 COSTING PACKAGE TO VENUE" forms the basis of this estimate.

Financial Summary

An estimate summary of total construction cost per the estimate summary of this report is as follows:

• Option A	$199.4 million
• Option B	$216.5 million

Estimate Inclusions

- Demolition
- Structural Modifications
- Exterior Enclosure
- Interior Construction
- Mechanical & Electrical Services
- Performance Equipment/Audio Visual
- General Requirements
- Design/Pricing Allowance
- General Conditions, Overhead & Fee
- Escalation to 1st Quarter 2027
- GMP buyout contingency
- Construction Change Order Contingency

Estimate Exclusions

- It is assumed that all the work can be done in one mobilization by the contractor and the building is closed and fully accessible
- Owner purchase loose fixtures, fittings and equipment and furniture (FF&E)
- Seismic upgrades to existing building
- Soil borings, geotech, site and utility surveys
- Testing/inspections expenses
- Permits and associated fees
- Relocation of main existing utilities
- Hazardous materials abatement and disposal
- Sole sourced equipment or systems
- Service and maintenance contracts
- Spare parts
- Event expenses (e.g. groundbreaking, topping off and re-opening expenses)
- Models, mockups, renderings
- Financing
- Endowment/Subsidies
- Fundraising
- Public relations
- Legal fees and expenses
- Professional fees and reimbursables
- Artwork
- Client staff or project management expenses
- Client overall project contingency

venue.

Page 1

venue. the bottom line

Abravanel Hall Master Plan
ROM Program v24 Estimate
Introduction — **April 15, 2024**

Definitions and Assumptions

The following helps define the terminology and assumptions in this report:

- Building renovation work: selective demolition; selective structural modification; building interiors includes partitions/doors, stairs/steps/interior finishes.
- Mechanical includes plumbing and drainage, fire protection, heating, ventilation, air conditioning and controls.
- Electrical includes services and distribution, lighting, devices and controls, systems and ancillaries and performance equipment accommodation.
- General requirements includes for cranage and hoisting, protection, safety, cleaning, engineering, subguard etc.
- General conditions, overhead and fee includes all overhead expenses for the construction manager.
- Sitework/utilities includes soft and hard landscaping, mechanical and electrical utilities.
- Design/pricing allowance is for ongoing design detailing that will occur until drawings are complete and for quantity measurement and pricing adjustments
- GMP buyout contingency is included to allow for variances in the trade bids received by the construction manager.
- Escalation to bid date allows for normal price increases that will likely occur between now and a projected 1st Quarter 2027 bid date and for normal unforeseen pricing fluctuations and market conditions. The escalation contingency should however be continually monitored between now and the bid date and any final adjustment to pricing can only be made with any certainty once market conditions at bid time are known.
- Construction change order contingency is for coordination conflicts on the drawings and other minor errors and omissions that may occur during the construction phase of the project (Owner changes not included).

Note: Venue has no control over the cost of labor, materials or equipment, the general contractor/construction manager's bid prices, competitive/negotiated bidding, or market conditions. Whilst Venue cannot warrant that bids or negotiated prices will not vary from any estimate prepared, we do however use our best endeavors to ensure that our estimate closely reflects the anticipated bid cost.

venue.

Page 2

OPTION A:

venue. the bottom line

Abravanel Hall Master Plan
ROM Program v24 Estimate - Option A

Estimate Summary - Group — April 15, 2024

ITEM	GFA	AMOUNT	Dollars/GSF
Performance Hall Upgrades	33,305 gsf	$58,390,000	$1,753/gsf
Front-of-House Upgrades and Addition	46,300 gsf	$66,075,000	$1,427/gsf
Event Space Addition	5,445 gsf	$6,150,000	$1,130/gsf
Back-of-House Demoliton and Upgrades	70,415 gsf	$52,505,000	$746/gsf
Plaza Upgrades		$16,310,000	
TOTAL PROJECT COST IN 1st QTR 2027 BID DOLLARS		$199,430,000	$1,280/gsf
Note: Seismic upgrades to existing building		Excluded	

venue. Page 3

venue. the bottom line

Abravanel Hall Master Plan
ROM Program v24 Estimate - Option A

Estimate Summary — April 15, 2024

	ITEM		AMOUNT	
A	Sub-Structure		$3,685,000	
B	Shell		$26,430,000	
C	Interiors		$23,810,000	
D	Mechanical & Electrical Services		$35,405,000	
E	Performance Equipment & Seating		$11,560,000	
F	Demolition & Temporary Construction		$1,255,000	
G	General Requirements		$8,345,000	
H	Siteworks & Utilities		$9,240,000	
	SUBTOTAL		$119,730,000	
I	Design/Pricing Allowance	15%	$17,960,000	
J	General Conditions, Overhead & Fee	17%	$23,620,000	
K	Escalation	14%	$23,095,000	
L	GMP Buyout Contingency	3%	$5,530,000	
	TOTAL BID COST IN 1st QTR 2027 BID DOLLARS		$189,935,000	$1,222/gsf
M	Owner Purchase Specialist Equipment		$0	
N	Construction Change Order Contingency	5%	$9,495,000	
	TOTAL CONSTRUCTION COST IN 1st QTR 2027 BID DOLLARS		$199,430,000	$1,283/gsf

Overall Gross Floor Area 155,460 gsf

venue. Page 4

venue.
the bottom line

Abravanel Hall Master Plan

ROM Program v24 Estimate - Option A

Elemental Summary *April 15, 2024*

		ELEMENT		Total	$ per gsf		ELEMENT
A		SUB-STRUCTURE		$3,686,000	$23.71		3%
	A1.1	Excavation	$963,600		$6.20		
	A1.2	Foundations	$1,535,000		$9.87		
	A1.3	Slab-on-Grade	$497,200		$3.20		
	A1.4	Basement Walls	$690,200		$4.44		
B		SHELL		$26,431,000	$170.02		24%
B1		Superstructure	$10,794,100		$69.43	10%	
	B1.1	Structural Concrete	$10,040,600		$64.59		
	B1.2	Structural Steel	$718,500		$4.62		
	B1.3	Other Structure	$0		$0.00		
	B1.4	Miscellaneous Structure	$35,000		$0.23		
B2		Exterior Enclosure	$15,636,900		$100.58	14%	
	B2.1	Roofing	$1,096,600		$7.05		
	B2.2	Exterior Walls	$3,255,000		$20.94		
	B2.3	Exterior Windows & Curtainwall	$10,522,400		$67.69		
	B2.4	Exterior Doors	$442,500		$2.85		
	B2.5	Miscellaneous Exterior	$320,400		$2.06		
C		INTERIORS		$23,810,700	$153.16		22%
C1		Partitions & Doors	$3,542,100		$22.78	3%	
	C1.1	Partitions	$2,454,300		$15.79		
	C1.2	Interior Doors	$1,087,800		$7.00		
C2		Vertical Movement	$2,978,500		$19.16	3%	
	C2.1	Stairs	$1,098,500		$7.07		
	C2.2	Elevators & Lifts	$1,880,000		$12.09		
C3		Interior Finishes & Fixtures	$17,290,100		$111.22	16%	
	C3.1	Public & Performance Spaces	$16,202,400		$104.22		
	C3.2	Non-Public Spaces	$1,087,700		$7.00		
D		MECHANICAL & ELECTRICAL SERVICES		$35,404,700	$227.74		32%
D1		Mechanical	$21,021,700		$135.22	19%	
	D1.1	Plumbing & Drainage	$3,967,500		$25.52		
	D1.2	Fire Protection	$1,246,700		$8.02		
	D1.3	Heating, Vent, Air Cond	$14,307,500		$92.03		
	D1.4	Controls	$1,500,000		$9.65		
D2		Electrical	$14,383,000		$92.52	13%	
	D2.1	Services & Distribution	$3,097,600		$19.93		
	D2.2	Lighting, Devices & Controls	$7,754,200		$49.88		
	D2.3	Systems & Ancillaries	$3,531,200		$22.71		
E		EQUIPMENT		$11,560,700	$74.36		10%
E1		Performance/AV Equipment & Seating	$11,560,700		$74.36	10%	
	E1.1	Performance Equipment & Seating	$8,860,700		$57.00		
	E1.2	AV Equipment	$2,700,000		$17.37		
E2		Miscellaneous Equipment	$0		$0.00	0%	
	E2.1	Miscellaneous Equipment	$0		$0.00		
F		DEMOLITION & TEMPORARY CONSTRUCTION		$1,255,500	$8.08		1%
	F1.1	Demolition	$1,255,500		$8.08		
	F1.2	Temporary Construction	$0		$0.00		
G		GENERAL REQUIREMENTS		$8,343,100	$53.67		8%
	G1.1	Equipment & Rentals	$1,572,600		$10.12		
	G1.2	Project Overhead Items	$6,770,500		$43.55		
TOTAL BUILDING ELEMENTAL COSTS				$110,491,700	$710.74		100%
			GROSS FLOOR AREA	155,460	gsf		
H		SITEWORKS & UTILITIES					
	H1.1	Siteworks	$8,225,000				
	H1.2	Mechanical Utilities	$450,000				
	H1.3	Electrical Utilities	$562,500				
TOTAL SITWORKS & UTILITIES				$9,237,500			

venue. **Page 5**

SPARANO+MOONEY ARCHITECTURE TBSE inc USUO SALT LAKE COUNTY

OPTION B:

venue. the bottom line

Abravanel Hall Master Plan

ROM Program v24 Estimate - Option B

Estimate Summary - Group April 15, 2024

ITEM	GFA	AMOUNT	Dollars/GSF
Performance Hall Upgrades	33,305 gsf	$58,385,000	$1,753/gsf
Front-of-House Upgrades and Addition	18,700 gsf	$44,975,000	$2,405/gsf
Alley Infill	23,980 gsf	$25,905,000	$1,080/gsf
Event Space Addition	13,385 gsf	$18,395,000	$1,374/gsf
Back-of-House Demoliton and Upgrades	70,585 gsf	$52,500,000	$744/gsf
Plaza Upgrades		$16,305,000	
TOTAL PROJECT COST IN 1st QTR 2027 BID DOLLARS		$216,465,000	$1,350/gsf

Note: Seismic upgrades to existing building — Excluded

venue. Page 6

venue. the bottom line

Abravanel Hall Master Plan

ROM Program v24 Estimate - Option B

Estimate Summary April 15, 2024

	ITEM		AMOUNT	
A	Sub-Structure		$3,780,000	
B	Shell		$33,965,000	
C	Interiors		$24,435,000	
D	Mechanical & Electrical Services		$36,205,000	
E	Performance Equipment & Seating		$11,560,000	
F	Demolition & Temporary Construction		$1,255,000	
G	General Requirements		$9,515,000	
H	Siteworks & Utilities		$9,240,000	
	SUBTOTAL		$129,955,000	
I	Design/Pricing Allowance	15%	$19,495,000	
J	General Conditions, Overhead & Fee	17%	$25,635,000	
K	Escalation	14%	$25,065,000	
L	GMP Buyout Contingency	3%	$6,005,000	
	TOTAL BID COST IN 1st QTR 2027 BID DOLLARS		$206,155,000	$1,289/gsf
M	Owner Purchase Specialist Equipment		$0	
N	Construction Change Order Contingency	5%	$10,310,000	
	TOTAL CONSTRUCTION COST IN 1st QTR 2027 BID DOLLARS		$216,465,000	$1,353/gsf

Overall Gross Floor Area 159,955 gsf

venue. Page 7

venue.
the bottom line

Abravanel Hall Master Plan

ROM Program v24 Estimate - Option B

Elemental Summary *April 15, 2024*

	ELEMENT		Total	$ per gsf		ELEMENT
A	SUB-STRUCTURE		$3,779,400	$23.63		3%
A1.1	Excavation	$1,222,000		$7.64		
A1.2	Foundations	$1,685,000		$10.53		
A1.3	Slab-on-Grade	$438,200		$2.74		
A1.4	Basement Walls	$434,200		$2.71		
B	SHELL		$33,962,800	$212.33		28%
B1	Superstructure	$12,755,300		$79.74	11%	
B1.1	Structural Concrete	$11,921,500		$74.53		
B1.2	Structural Steel	$797,800		$4.99		
B1.3	Other Structure	$0		$0.00		
B1.4	Miscellaneous Structure	$36,000		$0.23		
B2	Exterior Enclosure	$21,207,500		$132.58	18%	
B2.1	Roofing	$1,463,900		$9.15		
B2.2	Exterior Walls	$3,817,600		$23.87		
B2.3	Exterior Windows & Curtainwall	$14,110,100		$88.21		
B2.4	Exterior Doors	$677,500		$4.24		
B2.5	Miscellaneous Exterior	$1,138,400		$7.12		
C	INTERIORS		$24,436,900	$152.77		20%
C1	Partitions & Doors	$4,027,400		$25.18	3%	
C1.1	Partitions	$2,769,600		$17.31		
C1.2	Interior Doors	$1,257,800		$7.86		
C2	Vertical Movement	$3,408,500		$21.31	3%	
C2.1	Stairs	$1,293,500		$8.09		
C2.2	Elevators & Lifts	$2,115,000		$13.22		
C3	Interior Finishes & Fixtures	$17,001,000		$106.29	14%	
C3.1	Public & Performance Spaces	$15,328,400		$95.83		
C3.2	Non-Public Spaces	$1,672,600		$10.46		
D	MECHANICAL & ELECTRICAL SERVICES		$36,205,400	$226.35		30%
D1	Mechanical	$21,512,400		$134.49	18%	
D1.1	Plumbing & Drainage	$4,097,900		$25.62		
D1.2	Fire Protection	$1,283,800		$8.03		
D1.3	Heating, Vent, Air Cond	$14,585,900		$91.19		
D1.4	Controls	$1,544,800		$9.66		
D2	Electrical	$14,693,000		$91.86	12%	
D2.1	Services & Distribution	$3,192,400		$19.96		
D2.2	Lighting, Devices & Controls	$7,846,200		$49.05		
D2.3	Systems & Ancillaries	$3,654,400		$22.85		
E	EQUIPMENT		$11,560,700	$72.27		10%
E1	Performance/AV Equipment & Seating	$11,560,700		$72.27	10%	
E1.1	Performance Equipment & Seating	$8,860,700		$55.39		
E1.2	AV Equipment	$2,700,000		$16.88		
E2	Miscellaneous Equipment	$0		$0.00	0%	
E2.1	Miscellaneous Equipment	$0		$0.00		
F	DEMOLITION & TEMPORARY CONSTRUCTION		$1,253,700	$7.84		1%
F1.1	Demolition	$1,253,700		$7.84		
F1.2	Temporary Construction	$0		$0.00		
G	GENERAL REQUIREMENTS		$9,514,300	$59.48		8%
G1.1	Equipment & Rentals	$2,209,300		$13.81		
G1.2	Project Overhead Items	$7,305,000		$45.67		
TOTAL BUILDING ELEMENTAL COSTS			$120,713,200	$754.67		100%
		GROSS FLOOR AREA	159,955	gsf		
H	SITEWORKS & UTILITIES					
H1.1	Siteworks	$8,225,000				
H1.2	Mechanical Utilities	$450,000				
H1.3	Electrical Utilities	$562,500				
TOTAL SITWORKS & UTILITIES			$9,237,500			

venue. **Page 8**

SPARANO+MOONEY ARCHITECTURE TBSE inc SALT LAKE COUNTY

APPENDIX A

SUPPORTING DOCUMENTS

In addition to the items contained in the Appendix, the following list of documents were made available to the masterplan team and can be accessed upon request. Please contact Ryan Henrie to obtain access.

- 2016 Masterplan
- Existing As-Designed Drawings
    - 1977 Original Design Drawings
    - 1997 Ticket Office Expansion Drawings
    - 2014 Plaza Renovation
    - 2015 Fire Suppression Updates
    - 2016 Ceiling and VAV Box Updates
    - 2017 Lobby Renovation
- Site Surveys
- Facilities Condition Assessment Report
- Abravanel Hall / UMOCA / Salt Palace Systems Separation and Equipment Upgrade Study
- Overstage Rigging Loads
- Sheriff's Security Report
- Stage Plots
- Stage Lighting Study
- Art in Public Spaces Report

DOCUMENTS CONTAINED IN APPENDIX

A1 - Tier 1 Seismic Study
A2 - Community Engagement Summary

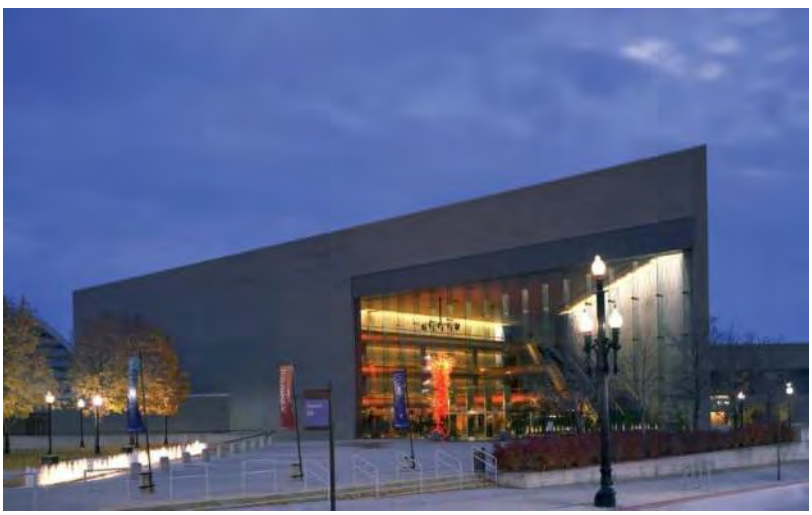
REAVELEY
Engineers

2023.0122

Abravanel Hall

Salt Lake City, Utah

TIER 1 STRUCTURAL SEISMIC SCREENING REPORT



Prepared for:
Salt Lake County
Facilities Management
2001 South State Street
Suite S3-120
Salt Lake City, UT 84114

Prepared by:
Michael Buehner, SE
Kristen Carter

PROFESSIONAL STRUCTURAL ENGINEER
No. 323755
MICHAEL D. BUEHNER
STATE OF UTAH

January 5, 2024

TABLE OF CONTENTS

EXECUTIVE SUMMARY

This report presents the results of a seismic evaluation of Abravanel Hall located in Salt Lake City, Utah. The seismic evaluation consisted of a Tier 1 seismic screening per ASCE 41-17 *Seismic Evaluation and Retrofit of Existing Buildings*. The Tier 1 approach serves to identify *potential* seismic deficiencies based on quick check procedures and simplified analysis approaches. As such, it is inherently conservative.

Background Information

Abravanel Hall was originally constructed in 1979. In 1998, an addition was constructed on the northwest corner of the building. The original structure consists of concrete and masonry shear walls with steel trusses at the roof level supporting a concrete over metal deck diaphragm. The addition is also largely masonry shear wall construction, with steel framing supporting a metal deck roof.

Major Seismic Deficiencies

The evaluation identified the following major potential seismic deficiencies in the building:

1. The shear stress generated in the masonry and concrete shear walls exceeds the recommended thresholds.
2. The masonry and concrete shear walls are not sufficiently redundant, particularly in the addition.
3. Heavy partition walls in the concert hall are apparently unbraced.
4. The structure is located in or adjacent to a moderate liquefaction potential zone, and is immediately adjacent to the Wasatch Fault and within a surface fault rupture zone.

Recommendations

The potential deficiencies prevent the building from being characterized as satisfactory with respect to recommended performance objectives of ASCE41-17. We recommend that further evaluations be performed to more accurately analyze and assess the expected seismic performance of the building.

INTRODUCTION

Geologic faults and seismic activity within the Intermountain West have increased the awareness of potential earthquake hazards in the region. The proximity of these faults to heavily populated areas only increases the risks that a seismic event induces. There are many faults in Utah, some of the most active being along the Wasatch Front where most of the state's population resides. Research has confirmed that significant earthquakes occur at regular geologic intervals within these areas. Along with our understanding of seismic forces, modern building codes have adopted the latest building technologies in order to improve the performance and safety of structures during an earthquake.

ASCE 41-17 *Seismic Evaluation and Retrofit of Existing Buildings* is a nationally recognized standard that provides a methodology to improve existing building performance and occupant safety during a major seismic event. The standard provides a systematic method of identifying potential building deficiencies and renovation options.

Abravanel Hall was evaluated using ASCE 41-17, Tier 1 methodology. The balance of this report presents the scope of the evaluation, a description of the structure, a summary of the evaluation findings, and recommendations for future action.

OBJECTIVES AND SCOPE

This structural seismic evaluation report summarizes the Tier 1 seismic evaluation of Abravanel Hall per the standard ASCE 41-17 *Seismic Evaluation and Retrofit of Existing Buildings*. The objectives of the structural seismic evaluation are to (1) Conduct an on-site investigation to verify existing conditions and determine essential building characteristics, and (2) to identify potential building deficiencies based on the Tier 1 screening process of ASCE 41-17.

This report is based on engineering judgment and site observation. Drawings for the original construction and the building addition were available for review; however, some information in the drawings and calculations was not clear. Engineering calculations were performed according to the 'quick check' procedures required by ASCE 41-17. Physical testing of in situ construction materials was not performed as part of this seismic evaluation.

The structural evaluation process requires knowledge of detailed structural information. Assumptions based on engineering judgment and a general understanding of similar construction types were made in order to complete the evaluation. Conditions may exist that were not discovered or were not visible to the observer during on-site investigation. Therefore, the conclusions and recommendations presented in this report are limited by the accuracy of information available to Reaveley Engineers during the evaluation process. The information in this structural seismic evaluation report is intended for assessment and planning purposes only and should not be used for retrofit design or construction.

Building Information and Existing Conditions

Abravanel Hall in Salt Lake City, Utah, is located at 123 West South Temple, 40° 46' 10.64" N, 111° 53' 43.06" W, elevation 4310 ft. A map of the building vicinity can be seen in Figure 1. The building is approximately 370 ft long by 160 ft wide. The building is a four-story building and is constructed of reinforced masonry and concrete bearing walls supported by concrete foundations. The roof consists of steel trusses with concrete over metal deck spanning between to act as a diaphragm. A two-story addition was constructed on the northwest corner of the building, consisting of reinforced masonry bearing walls on concrete foundations and steel beams supporting a metal roof deck.

Some cracking was noted in basement-level concrete walls and pan joists. However, in general, Abravanel Hall is in good condition with the noted exceptions.

Figure 1: Map of Building Vicinity

BASIS OF SEISMIC EVALUATION

Per the ASCE 41-17 methodology, building performance is evaluated according to acceptable levels of building damage for a given seismic hazard. Building performance is grouped into five main categories as shown in Figure 2.

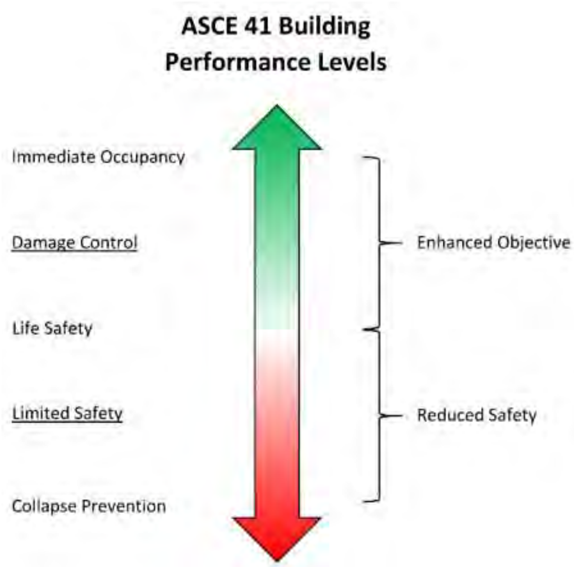


Figure 2: Building Performance Levels

In a similar manner, different seismic hazard (expected ground motion or shaking) levels are selected based on the probability that ground motions will exceed a given level in a given time period. A very large earthquake for a given site may only occur once in a 2,500-year time period. Alternatively, an earthquake may be expected about every 50 years but is relatively small. The hazard levels with the expected rate of return are shown in Figure 3.

	Probability of Exceedance	Mean Return Period (years)
	50% / 30 yrs	43
	50% / 50 yrs	72
BSE – 1E	20% / 50 yrs	225
	10% / 50 yrs	475
BSE – 2E	5% / 50 yrs	975
	2% / 50 yrs	2,475

Figure 3: Seismic Hazard Probability of Exceedance and Mean Return Period

Owners and stakeholders can define the minimum level of acceptable building performance objective if desired. In lieu of selecting a performance objective, ASCE 41 provides minimum recommendations. The minimum recommended objective for existing buildings is defined as the Basic Performance Objective for Existing Buildings (BPOE). The BPOE defines two performance levels for two seismic hazards. For Abravanel Hall, Damage Control at the lower BSE-1E seismic hazard and Limited Safety at the larger BSE-2E hazard were deemed appropriate based on building use and occupancy.

Damage Control is the structural performance level defined as a post-earthquake damage state between Life Safety and Immediate Occupancy. Immediate Occupancy is the performance level where a building remains safe to occupy and essentially retains its pre-earthquake strength and stiffness. Life Safety is the structural performance level defined as the post-earthquake damage state that presents a low probability of danger to occupants. While moderate damage to the building is present, occupants are largely safe and able to exit the building.

Limited Safety is the structural performance level defined as the post-earthquake damage state between Life Safety and Collapse Prevention. Collapse Prevention is defined as the post-earthquake state in which a structure has damaged components and continues to support gravity loads but retains little margin against collapse.

The BSE-1E corresponds to a seismic hazard where 80% of the seismic events will be this magnitude or smaller. This is a common earthquake that happens regularly. The BSE-2E corresponds to a seismic hazard with a 5% probability of exceedance in 50 years meaning that there is only a 5% chance that an earthquake could be larger than this magnitude. This earthquake is very rare and large.

SITE SEISMICITY

Abravanel Hall is located within very close proximity to the Wasatch Fault, and geologic seismic hazard mapping indicates that this site is likely to experience severe lateral ground motion. The site seismicity is dependent upon a Risk-targeted Maximum Considered Earthquake (MCE_R) which is meant to represent the large, rare seismic event characteristic for the site with adjustments for a targeted risk. The determination of this event is based on probabilistic and deterministic analyses of geo-seismic data.

ASCE 41-17 defines a minimum level of lateral force for use in the evaluation of existing structures. These ground motions are related to seismic response coefficients obtained from United States Geological Survey (USGS) contour maps developed in cooperation with the National Earthquake Hazards Reduction Program (NEHRP). The contour maps are separated into two categories—short and long periods, which correspond to a fundamental building vibration period of 0.2 seconds and 1.0 seconds, respectively. The period of a structure is the amount of time required to complete one cycle of natural vibration. A stiff building will have a short period, and a flexible building will have a long period.

The seismic response coefficients at the site for the BSE-1E (20% in 50 years) are:

	Short Period	Long Period
Latitude = 40.769623	$S_a = 0.259$	$S_1 = 0.091$
Longitude = -111.895297	$F_a = 1.593$	$F_v = 2.4$
Soil Site Class = D	$S_{XS} = 0.413$	$S_{X1} = 0.219$

The seismic response coefficients at the site for the BSE-2E (5% in 50 years) are:

	Short Period	Long Period
Latitude = 40.769623	$S_a = 1.036$	$S_1 = 0.357$
Longitude = -111.895297	$F_a = 1.2$	$F_v = 1.943$
Soil Site Class = D	$S_{XS} = 1.243$	$S_{X1} = 0.694$

The level of seismicity at the site is defined as "High" per Section 2.5 of ASCE 41-17.

TIER 1 EVALUATION CRITERIA

An ASCE 41-17 Tier 1 Evaluation consists of a series of checklists and simple quick check calculations that are used to identify potential structural seismic deficiencies for a given building. An on-site investigation was carried out on November 1, 2023, to determine the existing conditions of Abravanel Hall, and to corroborate as-built conditions with historic drawings. Neither destructive nor non-destructive tests were carried out during the visit. Visual observation of the structure was restricted to readily visible areas. Finishes were not removed as part of the on-site investigation. The original building was classified as a Concrete Shear Wall with Stiff Diaphragm (C2) and Reinforced Masonry Bearing Walls with Stiff Diaphragms (RM2) building for the purposes of the Tier 1 Evaluation. The addition was classified as a Reinforced Masonry Bearing Wall with Flexible Diaphragm (RM1) building for the purposes of the evaluation.

TIER 1 CHECKLIST DEFICIENCIES

Some structural and non-structural building deficiencies were identified during the Tier 1 Evaluation. Items in the Tier 1 checklists were marked as Compliant (C), Non-compliant (NC), Not Applicable (N/A), or Unknown (U). A complete list of these items is presented in Appendix B. The following potential structural deficiencies were identified for the building based on the results of the Tier 1 quick check procedures. Quick check calculations are included in Appendix C. It is of note that items found to be “non-compliant” or marked as “unknown” could be further evaluated under a Tier 2 or Tier 3 evaluation, which are more detailed evaluations. The items outlined below represent potential seismic deficiencies following the Tier 1 Procedure. Whether these items are actual deficiencies requires a Tier 2 or Tier 3 analysis.

Collapse Prevention Basic Configuration Checklist
All structure types
Geologic Site Hazards

- Liquefaction: Unknown – Abravanel Hall is in or adjacent to a moderate liquefaction potential zone. The soil condition is unknown at the site.
- Surface Fault Rupture: Noncompliant – Abravanel Hall is immediately adjacent to the Wasatch Fault and within a surface fault rupture zone.

Collapse Prevention Structural Checklist for Building Types C2 and C2a
Seismic-Force-Resisting System

- Shear Stress Check: Noncompliant – the shear stress in the known shear walls in the concert hall and lobby exceeds the recommended threshold of Section 4.4.3.3.

Collapse Prevention Structural Checklist for Building Types RM1 and RM2
Seismic-Force-Resisting System

- Redundancy: Noncompliant – only one shear wall is present in the addition in the north-south direction.
- Shear Stress Check: Noncompliant – the shear stress in the known and assumed shear walls in the addition exceeds the recommended threshold of Section 4.4.3.3.

Nonstructural Checklist
All structure types
Partitions

- Heavy Partitions Supported by Ceilings: Noncompliant – masonry walls that are unbraced except by the ceiling system are evident in the attic above the concert hall and lobby.

Ceilings

- Suspended Lath and Plaster: Unknown – the suspended lath and plaster ceiling above the concert hall has apparent seismic attachments; however, the spacing is unknown.
- Suspended Gypsum Board: Unknown – the suspended gypsum board ceiling above the lobby has apparent seismic attachments; however, the spacing is unknown.

Other items that are not required parts of the assessment due to the selected performance level, but that bear noting, include:

Cladding and Glazing

- Overhead Glazing: Unknown – it is unclear whether the glazing panes in the glass wall are laminated and detailed to remain in the frame when cracked.

Mechanical and Electrical Equipment

- Fall-Prone Equipment: equipment and piping at the basement level may benefit from seismic bracing.

Elevators

- Seismic Switch: while not required to be compliant at this level of analysis, the elevator is known to not be equipped with a seismic switch.

TIER 1 FINDINGS

The Tier 1 screening procedure of ASCE41-17 has identified some potential deficiencies. The most pressing finding is the capacity of the shear walls in both the original building and the addition; however, other vulnerabilities may warrant addressing as well. Nonstructural deficiencies were also observed and do not pose an immediate threat to the building but could create risks to life safety. In particular, the non-load-bearing masonry walls are considered not braced at the proper spacing at the top of wall for lateral support.

CONCLUSIONS AND RECOMMENDATIONS

An ASCE 41-17 Tier 1 screening was performed for Abravanel Hall. An on-site investigation was performed to verify existing conditions and appraise the building for obvious patterns of defects or deterioration. Using existing drawings, quick check calculations were performed, and potential deficiencies were identified.

The screening used the BPOE performance objectives of Limited Safety paired with a BSE-2E level seismic event. The structure was found to have potential deficiencies that prevent it from meeting the specified performance objective.

The typical recommendation at this point would be to continue with further analysis and evaluation per the Tier 2 methods of ASCE 41. The Tier 2 procedure builds on the information discovered from the Tier 1 screening to investigate the potential deficiencies identified. The Tier 2 procedure is a more in-depth evaluation that refines the calculations performed in the Tier 1 screening to more accurately describe the concerns. This is an approach that is available to the Owner and Stakeholders at this point.

The conclusions of this report are limited to conditions observed during the on-site investigation and accuracy of the information contained in existing drawings. No demolition or removal of finishes was performed as part of the evaluation. Therefore, the results of the seismic evaluation are based on historic drawings and readily visible conditions; actual structural conditions may vary from those shown in the drawings.

The Tier 1 evaluation is a basic screening procedure intended to identify potential deficiencies only. Revisions to the conclusions of this evaluation may be appropriate as future building use is considered, or more detailed information regarding the structural system becomes available. Future study and a more in-depth analysis may be accomplished through demolition, destructive investigation, and/or the removal of finishes to determine specific structural details.

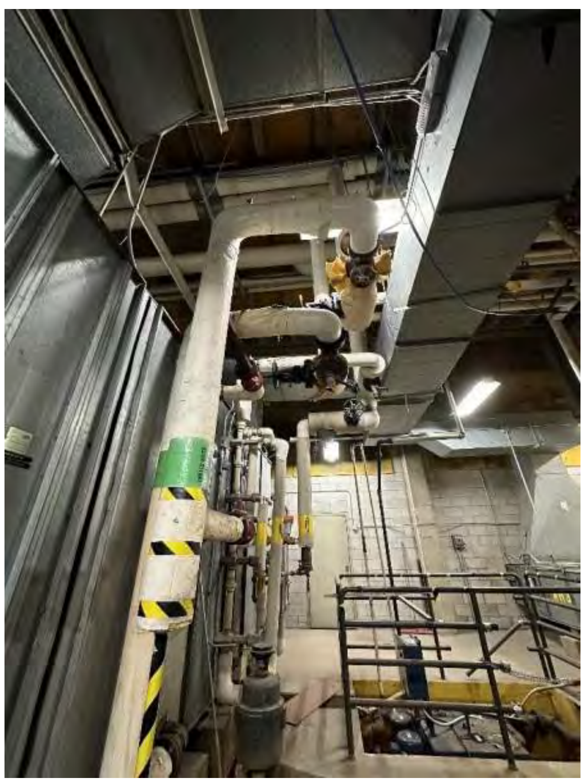
APPENDIX A

Photographs

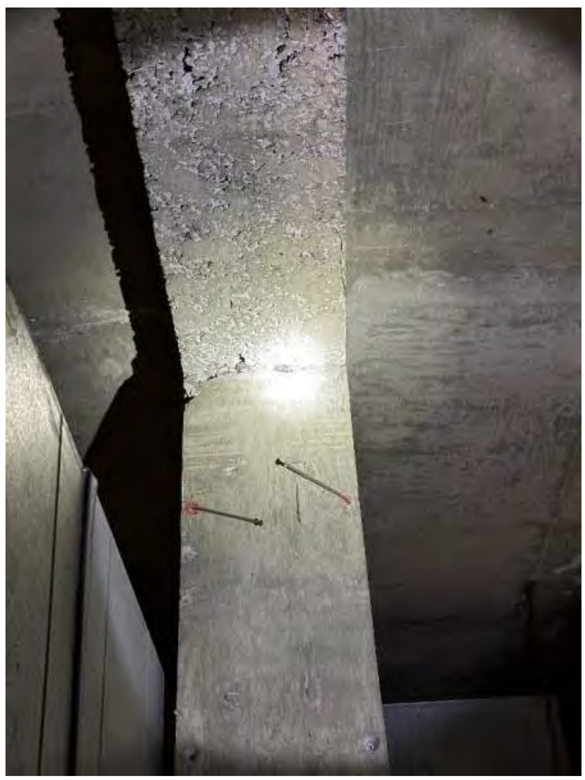

Photograph 1 – Laterally unbraced piping


Photograph 2 – Laterally unbraced piping

Photograph 3 – Laterally unbraced and unanchored equipment


Photograph 4 – Laterally unbraced piping

Photograph 5 – Laterally unbraced suspended equipment



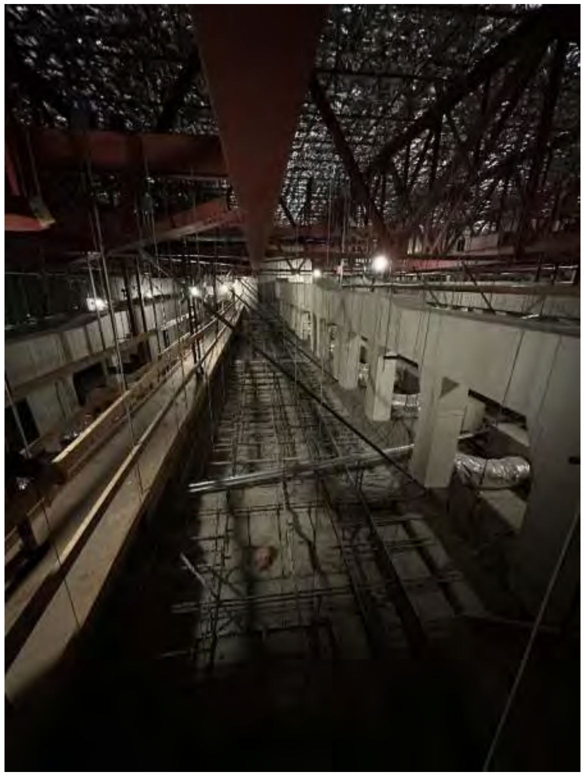
Photograph 6 – Poor consolidation of concrete beam at basement level

Photograph 7 – Poor consolidation of concrete column at basement level

Photograph 8 – Cracking in concrete wall and efflorescence/cracking of slab in basement level


Photograph 9 – Cracking in concrete pan joists/slab in loading dock and storage area


Photograph 10 – Cracking in concrete pan joists/slab in loading dock and storage area


Photograph 11 – Bracing of lath and plaster ceiling system


Photograph 12 – Bracing of suspended gypsum ceiling system


Photograph 13 – Laterally unbraced masonry walls at roof level


Photograph 14 – Cracking in exterior brick veneer

APPENDIX B

ASCE 41-17 Tier 1 Checklists

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference
Low Seismicity						
Building System - General						
C	NC	NA	U	LOAD PATH: The structure contains a complete, well-defined load path, including structural elements and connections, that serves to transfer the inertial forces associated with the mass of all elements of the building to the foundation.	5.4.1.1	A.2.1.1
C	NC	NA	U	ADJACENT BUILDINGS: The clear distance between the building being evaluated and any adjacent building is greater than 0.25% of the height of the shorter building in low seismicity, 0.5% in moderate seismicity, and 1.5% in high seismicity.	5.4.1.2	A.2.1.2
C	NC	NA	U	MEZZANINES: Interior mezzanine levels are braced independently from the main structure or are anchored to the seismic-force-resisting elements of the main structure.	5.4.1.3	A.2.1.3
Building System - Building Configuration						
C	NC	NA	U	WEAK STORY: The sum of the shear strengths of the seismic-force-resisting system in any story in each direction is not less than 80% of the strength in the adjacent story above.	5.4.2.1	A.2.2.2
C	NC	NA	U	SOFT STORY: The stiffness of the seismic-force-resisting system in any story is not less than 70% of the seismic-force-resisting system stiffness in an adjacent story above or less than 80% of the average seismic-force-resisting system stiffness of the three stories above.	5.4.2.2	A.2.2.3
C	NC	NA	U	VERTICAL IRREGULARITIES: All vertical elements in the seismic-force resisting system are continuous to the foundation.	5.4.2.3	A.2.2.4
C	NC	NA	U	GEOMETRY: There are no changes in the net horizontal dimension of the seismic-force-resisting system of more than 30% in a story relative to adjacent stories, excluding one-story penthouses and mezzanines.	5.4.2.4	A.2.2.5
C	NC	NA	U	MASS: There is no change in effective mass of more than 50% from one story to the next. Light roofs, penthouses, and mezzanines need not be considered.	5.4.2.5	A.2.2.6
C	NC	NA	U	TORSION: The estimated distance between the story center of mass and the story center of rigidity is less than 20% of the building width in either plan dimension.	5.4.2.6	A.2.2.7
Moderate Seismicity (Complete the Following Items in Addition to the Items for Low Seismicity)						
Geologic Site Hazards						
C	NC	NA	U	LIQUEFACTION: Liquefaction-susceptible, saturated, loose granular soils that could jeopardize the building's seismic performance do not exist in the foundation soils at depths within 50 ft (15.2 m) under the building.	5.4.3.1	A.6.1.1
C	NC	NA	U	SLOPE FAILURE: The building site is located away from potential earthquake-induced slope failures or rockfalls so that it is unaffected by such failures or is capable of accommodating any predicted movements without failure.	5.4.3.1	A.6.1.2
C	NC	NA	U	SURFACE FAULT RUPTURE: Surface fault rupture and surface displacement at the building site are not anticipated.	5.4.3.1	A.6.1.3
High Seismicity (Complete the Following Items in Addition to the Items for Moderate Seismicity)						
Foundation Configuration						
C	NC	NA	U	OVERTURNING: The ratio of the least horizontal dimension of the seismic-force-resisting system at the foundation level to the building height (base/height) is greater than $0.6S_a$.	5.4.3.3	A.6.2.1
C	NC	NA	U	TIES BETWEEN FOUNDATION ELEMENTS: The foundation has ties adequate to resist seismic forces where footings, piles, and piers are not restrained by beams, slabs, or soils classified as Site Class A, B, or C.	5.4.3.4	A.6.2.2

Table 17-24 Collapse Prevention Structural Checklist for Building Types C2 and C2a

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference
Low and Moderate Seismicity						
Seismic-Force-Resisting System						
C	NC	NA	U	COMPLETE FRAMES: Steel or concrete frames classified as secondary components form a complete vertical-load-carrying system.	5.5.2.5.1	A.3.1.6.1
C	NC	NA	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2.	5.5.1.1	A.3.2.1.1
C	NC	NA	U	SHEAR STRESS CHECK: The shear stress in the concrete shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than the greater of 100 lb/in.^{2} (0.69 MPa) or $2\sqrt{f'_c}$.	5.5.3.1.1	A.3.2.2.1
C	NC	NA	U	REINFORCING STEEL: The ratio of reinforcing steel area to gross concrete area is not less than 0.0012 in the vertical direction and 0.0020 in the horizontal direction.	5.5.3.1.3	A.3.2.2.2
Connections						
C	NC	NA	U	WALL ANCHORAGE AT FLEXIBLE DIAPHRAGMS: Exterior concrete or masonry walls that are dependent on flexible diaphragms for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections have strength to resist the connection force calculated in the Quick Check procedure of Section 4.4.3.7.	5.7.1.1	A.5.1.1
C	NC	NA	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls.	5.7.2	A.5.2.1
C	NC	NA	U	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation with vertical bars equal in size and spacing to the vertical wall reinforcing directly above the foundation.	5.7.3.4	A.5.3.5
High Seismicity (Complete the Following Items in Addition to the Items for Low and Moderate Seismicity)						
Seismic-Force-Resisting System						
C	NC	NA	U	DEFLECTION COMPATIBILITY: Secondary components have the shear capacity to develop the flexural strength of the components.	5.5.2.5.2	A.3.1.6.2
C	NC	NA	U	FLAT SLABS: Flat slabs or plates not part of the seismic-force-resisting system have continuous bottom steel through the column joints.	5.5.2.5.3	A.3.2.2.3
C	NC	NA	U	COUPLING BEAMS: The ends of both walls to which the coupling beam is attached are supported at each end to resist vertical loads caused by overturning.	5.5.3.2.1	A.3.2.2.3
Diaphragms (Stiff or Flexible)						
C	NC	NA	U	DIAPHRAGM CONTINUITY: The diaphragms are not composed of split-level floors and do not have expansion joints.	5.6.1.1	A.4.1.1
C	NC	NA	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length.	5.6.1.3	A.4.1.4
Flexible Diaphragms						
C	NC	NA	U	CROSS TIES: There are continuous cross ties between diaphragm chords.	5.6.1.2	A.4.1.2
C	NC	NA	U	STRAIGHT SHEATHING: All straight-sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered.	5.6.2	A.4.2.1
C	NC	NA	U	SPANS: All wood diaphragms with spans greater than 24 ft (7.3 m) consist of wood structural panels or diagonal sheathing.	5.6.2	A.4.2.2
C	NC	NA	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft (12.2 m) and aspect ratios less than or equal to 4-to-1.	5.6.2	A.4.2.2
C	NC	NA	U	OTHER DIAPHRAGMS: Diaphragms do not consist of a system other than wood, metal deck, concrete, or horizontal bracing.	5.6.5	A.4.7.1
Connections						
C	NC	NA	U	UPLIFT AT PILE CAPS: Pile caps have top reinforcement, and piles are anchored to the pile caps.	5.7.3.5	A.5.3.8

Table 17-34 Collapse Prevention Structural Checklist for Building Types RM1 and RM2

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference
Low and Moderate Seismicity						
Seismic-Force-Resisting System						
C	NC	NA	U	REDUNDANCY: The number of lines of shear walls in each principal direction is greater than or equal to 2.	5.5.1.1	A.3.2.1.1
C	NC	NA	U	SHEAR STRESS CHECK: The shear stress in the reinforced masonry shear walls, calculated using the Quick Check procedure of Section 4.4.3.3, is less than 70 lb/in.^{2} (0.48 MPa).	5.5.3.1.1	A.3.2.4.1
C	NC	NA	U	REINFORCING STEEL: The total vertical and horizontal reinforcing steel ratio in reinforced masonry walls is greater than 0.002 of the wall with the minimum of 0.0007 in either of the two directions; the spacing of reinforcing steel is less than 48 in. (1220 mm), and all vertical bars extend to the top of the walls.	5.5.3.1.3	A.3.2.4.2
Stiff Diaphragms						
C	NC	NA	U	TOPPING SLAB: Precast concrete diaphragm elements are interconnected by a continuous reinforced concrete topping slab.	5.6.4	A.4.5.1
C	NC	NA	U	WALL ANCHORAGE: Exterior concrete or masonry walls that are dependent on the diaphragm for lateral support are anchored for out-of-plane forces at each diaphragm level with steel anchors, reinforcing dowels, or straps that are developed into the diaphragm. Connections have strength to resist the	5.7.1.1	A.5.1.1
C	NC	NA	U	WOOD LEDGERS: The connection between the wall panels and the diaphragm does not induce cross-grain bending or tension in the wood ledgers.	5.7.1.3	A.5.1.2
C	NC	NA	U	TRANSFER TO SHEAR WALLS: Diaphragms are connected for transfer of seismic forces to the shear walls.	5.7.2	A.5.2.1
C	NC	NA	U	TOPPING SLAB TO WALLS OR FRAMES: Reinforced concrete topping slabs that interconnect the precast concrete diaphragm elements are doweled for transfer of forces into the shear wall or frame elements.	5.7.2	A.5.2.3
C	NC	NA	U	FOUNDATION DOWELS: Wall reinforcement is doweled into the foundation.	5.7.3.4	A.5.3.5
C	NC	NA	U	GIRDER–COLUMN CONNECTION: There is a positive connection using plates, connection hardware, or straps between the girder and the column support.	5.7.4.1	A.5.4.1
High Seismicity (Complete the Following Items in Addition to the Items for Low and Moderate Seismicity)						
Stiff Diaphragms						
C	NC	NA	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length.	5.6.1.3	A.4.1.4
C	NC	NA	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft (2.4 m) long.	5.6.1.3	A.4.1.6
Flexible Diaphragms						
C	NC	NA	U	CROSS TIES: There are continuous cross ties between diaphragm chords.	5.6.1.2	A.4.1.2
C	NC	NA	U	OPENINGS AT SHEAR WALLS: Diaphragm openings immediately adjacent to the shear walls are less than 25% of the wall length.	5.6.1.3	A.4.1.4
C	NC	NA	U	OPENINGS AT EXTERIOR MASONRY SHEAR WALLS: Diaphragm openings immediately adjacent to exterior masonry shear walls are not greater than 8 ft (2.4 m) long.	5.6.1.3	A.4.1.6
C	NC	NA	U	STRAIGHT SHEATHING: All straight-sheathed diaphragms have aspect ratios less than 2-to-1 in the direction being considered.	5.6.2	A.4.2.1
C	NC	NA	U	SPANS: All wood diaphragms with spans greater than 24 ft (7.3 m) consist of wood structural panels or diagonal sheathing.	5.6.2	A.4.2.2
C	NC	NA	U	DIAGONALLY SHEATHED AND UNBLOCKED DIAPHRAGMS: All diagonally sheathed or unblocked wood structural panel diaphragms have horizontal spans less than 40 ft (12.2 m) and aspect ratios less than or equal to 4-to-1.	5.6.2	A.4.2.3
C	NC	NA	U	OTHER DIAPHRAGMS: Diaphragms do not consist of a system other than wood, metal deck, concrete, or horizontal bracing.	5.6.5	A.4.7.1
Connections						
C	NC	NA	U	STIFFNESS OF WALL ANCHORS: Anchors of concrete or masonry walls to wood structural elements are installed taut and are stiff enough to limit the relative movement between the wall and the diaphragm to no greater than 1/8 in. (3 mm) before engagement of the anchors.	5.7.1.2	A.5.1.4

Table 17-38. Nonstructural Checklist

Status				Evaluation Statement	Tier 2 Reference	Commentary Reference
Life Safety Systems						
C	NC	NA	U	**HR—not required; LS—LMH; PR—LMH.** FIRE SUPPRESSION PIPING: Fire suppression piping is anchored and braced in accordance with NFPA-13.	13.7.4	A.7.13.1
C	NC	NA	U	**HR—not required; LS—LMH; PR—LMH.** FLEXIBLE COUPLINGS: Fire suppression piping has flexible couplings in accordance with NFPA-13.	13.7.4	A.7.13.2
C	NC	NA	U	**HR—not required; LS—LMH; PR—LMH.** EMERGENCY POWER: Equipment used to power or control Life Safety systems is anchored or braced.	13.7.7	A.7.12.1
C	NC	NA	U	**HR—not required; LS—LMH; PR—LMH.** STAIR AND SMOKE DUCTS: Stair pressurization and smoke control ducts are braced and have flexible connections at seismic joints.	13.7.6	A.7.14.1
C	NC	NA	U	**HR—not required; LS—MH; PR—MH.** SPRINKLER CEILING CLEARANCE: Penetrations through panelized ceilings for fire suppression devices provide clearances in accordance with NFPA-13.	13.7.4	A.7.13.3
C	NC	NA	U	**HR—not required; LS—not required; PR—LMH.** EMERGENCY LIGHTING: Emergency and egress lighting equipment is anchored or braced.	13.7.9	A.7.3.1
Hazardous Materials						
C	NC	NA	U	**HR—LMH; LS—LMH; PR—LMH.** HAZARDOUS MATERIAL EQUIPMENT: Equipment mounted on vibration isolators and containing hazardous material is equipped with restraints or snubbers.	13.7.1	A.7.12.2
C	NC	NA	U	**HR—LMH; LS—LMH; PR—LMH.** HAZARDOUS MATERIAL STORAGE: Breakable containers that hold hazardous material, including gas cylinders, are restrained by latched doors, shelf lips, wires, or other methods.	13.8.3	A.7.15.1
C	NC	NA	U	**HR—MH; LS—MH; PR—MH.** HAZARDOUS MATERIAL DISTRIBUTION: Piping or ductwork conveying hazardous materials is braced or otherwise protected from damage that would allow hazardous material release.	13.7.3 13.7.5	A.7.13.4
C	NC	NA	U	**HR—MH; LS—MH; PR—MH.** SHUTOFF VALVES: Piping containing hazardous material, including natural gas, has shutoff valves or other devices to limit spills or leaks.	13.7.3 13.7.5	A.7.13.3
C	NC	NA	U	**HR—LMH; LS—LMH; PR—LMH.** FLEXIBLE COUPLINGS: Hazardous material ductwork and piping, including natural gas piping, have flexible couplings.	13.7.3 13.7.5	A.7.15.4
C	NC	NA	U	**HR—MH; LS—MH; PR—MH.** PIPING OR DUCTS CROSSING SEISMIC JOINTS: Piping or ductwork carrying hazardous material that either crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5 13.7.6	A.7.13.6
Partitions						
C	NC	NA	U	**HR—LMH; LS—LMH; PR—LMH.** UNREINFORCED MASONRY: Unreinforced masonry or hollow-clay tile partitions are braced at a spacing of at most 10 ft (3.0 m) in Low or Moderate Seismicity, or at most 6 ft (1.8 m) in High Seismicity.	13.6.2	A.7.1.1
C	NC	NA	U	**HR—LMH; LS—LMH; PR—LMH.** HEAVY PARTITIONS SUPPORTED BY CEILINGS: The tops of masonry or hollow-clay tile partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C	NC	NA	U	**HR—not required; LS—MH; PR—MH.** DRIFT: Rigid cementitious partitions are detailed to accommodate the following drift ratios: in steel moment frame, concrete moment frame, and wood frame buildings, 0.02; in other buildings, 0.005.	13.6.2	A.7.1.2
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** LIGHT PARTITIONS SUPPORTED BY CEILINGS: The tops of gypsum board partitions are not laterally supported by an integrated ceiling system.	13.6.2	A.7.2.1
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** STRUCTURAL SEPARATIONS: Partitions that cross structural separations have seismic or control joints.	13.6.2	A.7.1.3
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** TOPS: The tops of ceiling-high framed or panelized partitions have lateral bracing to the structure at a spacing equal to or less than 6 ft (1.8 m).	13.6.2	A.7.1.4
Ceilings						
C	NC	NA	U	**HR—H; LS—MH; PR—LMH.** SUSPENDED LATH AND PLASTER: Suspended lath and plaster ceilings have attachments that resist seismic forces for every 12 ft^2 (1.1 m^2) of area.	13.6.4	A.7.2.3

C	NC	NA	U	**HR—not required; LS—MH; PR—LMH.** SUSPENDED GYPSUM BOARD: Suspended gypsum board ceilings have attachments that resist seismic forces for every 12 ft^2 (1.1 m^2) of area.	13.6.4	A.7.2.3
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** INTEGRATED CEILINGS: Integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) and ceilings of smaller areas that are not surrounded by restraining partitions are laterally restrained at a spacing no greater than 12 ft (3.6 m) with members attached to the structure above. Each restraint location has a minimum of four diagonal wires and compression struts, or diagonal members capable of resisting compression.	13.6.4	A.7.2.2
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** EDGE CLEARANCE: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) have clearances from the enclosing wall or partition of at least the following: in Moderate Seismicity, 1/2 in. (13 mm); in High Seismicity, 3/4 in. (19 mm).	13.6.4	A.7.2.4
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** CONTINUITY ACROSS STRUCTURE JOINTS: The ceiling system does not cross any seismic joint and is not attached to multiple independent structures.	13.6.4	A.7.2.5
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** EDGE SUPPORT: The free edges of integrated suspended ceilings with continuous areas greater than 144 ft^2 (13.4 m^2) are supported by closure angles or channels not less than 2 in. (51 mm) wide.	13.6.4	A.7.2.6
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** SEISMIC JOINTS: Acoustical tile or lay-in panel ceilings have seismic separation joints such that each continuous portion of the ceiling is no more than 2,500 ft^2 (232.3 m^2) and has a ratio of long-to-short dimension no more than 4-to-1.	13.6.4	A.7.2.7

Light Fixtures

C	NC	NA	U	**HR—not required; LS—MH; PR—MH.** INDEPENDENT SUPPORT: Light fixtures that weigh more per square foot than the ceiling they penetrate are supported independent of the grid ceiling suspension system by a minimum of two wires at diagonally opposite corners of each fixture.	13.6.4 13.7.9	A.7.3.2
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** PENDANT SUPPORTS: Light fixtures on pendant supports are attached at a spacing equal to or less than 6 ft. Unbraced suspended fixtures are free to allow a 360-degree range of motion at an angle not less than 45 degrees from horizontal without contacting adjacent components. Alternatively, if rigidly supported and/or braced, they are free to move with the structure to which they are attached without damaging adjoining components. Additionally, the connection to the structure is capable of accommodating the movement without failure.	13.7.9	A.7.3.3
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** LENS COVERS: Lens covers on light fixtures are attached with safety devices.	13.7.9	A.7.3.4

Cladding and Glazing

C	NC	NA	U	**HR—MH; LS—MH; PR—MH.** CLADDING ANCHORS: Cladding components weighing more than 10 lb/ft^2 (0.48 kN/m^2) are mechanically anchored to the structure at a spacing equal to or less than the following: for Life Safety in Moderate Seismicity, 6 ft (1.8 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 ft (1.2 m).	13.6.1	A.7.4.1
C	NC	NA	U	**HR—not required; LS—MH; PR—MH.** CLADDING ISOLATION: For steel or concrete moment-frame buildings, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.3
C	NC	NA	U	**HR—MH; LS—MH; PR—MH.** MULTI-STORY PANELS: For multi-story panels attached at more than one floor level, panel connections are detailed to accommodate a story drift ratio by the use of rods attached to framing with oversize holes or slotted holes of at least the following: for Life Safety in Moderate Seismicity, 0.01; for Life Safety in High Seismicity and for Position Retention in any seismicity, 0.02, and the rods have a length-to-diameter ratio of 4.0 or less.	13.6.1	A.7.4.4
C	NC	NA	U	**HR—not required; LS—MH; PR—MH.** THREADED RODS: Threaded rods for panel connections detailed to accommodate drift by bending of the rod have a length-to-diameter ratio greater than 0.06 times the story height in inches for Life Safety in Moderate Seismicity and 0.12 times the story height in inches for Life Safety in High Seismicity and Position Retention in any seismicity.	13.6.1	A.7.4.9

C	NC	NA	U	**HR—MH; LS—MH; PR—MH.** PANEL CONNECTIONS: Cladding panels are anchored out of plane with a minimum number of connections for each wall panel, as follows: for Life Safety in Moderate Seismicity, 2 connections; for Life Safety in High Seismicity and for Position Retention in any seismicity, 4 connections.	13.6.1.4	A.7.4.5
C	NC	NA	U	**HR—MH; LS—MH; PR—MH.** BEARING CONNECTIONS: Where bearing connections are used, there is a minimum of two bearing connections for each cladding panel.	13.6.1.4	A.7.4.6
C	NC	NA	U	**HR—MH; LS—MH; PR—MH.** INSERTS: Where concrete cladding components use inserts, the inserts have positive anchorage or are anchored to reinforcing steel.	13.6.1.4	A.7.4.7
C	NC	NA	U	**HR—not required; LS—MH; PR—MH.** OVERHEAD GLAZING: Glazing panes of any size in curtain walls and individual interior or exterior panes more than 16 ft^2 (1.5 m^2) in area are laminated annealed or laminated heat-strengthened glass and are detailed to remain in the frame when cracked.	13.6.1.5	A.7.4.8

Masonry Veneer

C	NC	NA	U	**HR—not required; LS—LMH; PR—LMH.** TIES: Masonry veneer is connected to the backup with corrosion-resistant ties. There is a minimum of one tie for every 2-2/3 ft^2 (0.25 m^2), and the ties have spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 36 in. (914 mm); for Life Safety in High Seismicity and for Position Retention in any seismicity, 24 in. (610 mm).	13.6.1.2	A.7.5.1
C	NC	NA	U	**HR—not required; LS—LMH; PR—LMH.** SHELF ANGLES: Masonry veneer is supported by shelf angles or other elements at each floor above the ground floor.	13.6.1.2	A.7.5.2
C	NC	NA	U	**HR—not required; LS—LMH; PR—LMH.** WEAKENED PLANES: Masonry veneer is anchored to the backup adjacent to weakened planes, such as at the locations of flashing.	13.6.1.2	A.7.5.3
C	NC	NA	U	**HR—LMH; LS—LMH; PR—LMH.** UNREINFORCED MASONRY BACKUP: There is no unreinforced masonry backup.	13.6.1.1 13.6.1.2	A.7.7.2
C	NC	NA	U	**HR—not required; LS—MH; PR—MH.** STUD TRACKS: For veneer with cold-formed steel stud backup, stud tracks are fastened to the structure at a spacing equal to or less than 24 in. (610 mm) on center.	13.6.1.1 13.6.1.2	A.7.6.1
C	NC	NA	U	**HR—not required; LS—MH; PR—MH.** ANCHORAGE: For veneer with concrete block or masonry backup, the backup is positively anchored to the structure at a horizontal spacing equal to or less than 4 ft along the floors and roof.	13.6.1.1 13.6.1.2	A.7.7.1
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** WEEP HOLES: In veneer anchored to stud walls, the veneer has functioning weep holes and base flashing.	13.6.1.2	A.7.5.6
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** OPENINGS: For veneer with cold-formed-steel stud backup, steel studs frame window and door openings.	13.6.1.1 13.6.1.2	A.7.6.2

Parapets, Cornices, Ornamentation, and Appendages

C	NC	NA	U	**HR—LMH; LS—LMH; PR—LMH.** URM PARAPETS OR CORNICES: Laterally unsupported unreinforced masonry parapets or cornices have height-to-thickness ratios no greater than the following: for Life Safety in Low or Moderate Seismicity, 2.5; for Life Safety in High Seismicity and for Position Retention in any seismicity, 1.5.	13.6.5	A.7.8.1
C	NC	NA	U	**HR—not required; LS—LMH; PR—LMH.** CANOPIES: Canopies at building exits are anchored to the structure at a spacing no greater than the following: for Life Safety in Low or Moderate Seismicity, 10 ft (3.0 m); for Life Safety in High Seismicity and for Position Retention in any seismicity, 6 ft (1.8 m).	13.6.6	A.7.8.2
C	NC	NA	U	**HR—H; LS—MH; PR—LMH.** CONCRETE PARAPETS: Concrete parapets with height-to-thickness ratios greater than 2.5 have vertical reinforcement.	13.6.5	A.7.8.3
C	NC	NA	U	**HR—MH; LS—MH; PR—LMH.** APPENDAGES: Cornices, parapets, signs, and other ornamentation or appendages that extend above the highest point of anchorage to the structure or cantilever from components are reinforced and anchored to the structural system at a spacing equal to or less than 6 ft (1.8 m). This evaluation statement item does not apply to parapets or cornices covered by other evaluation statements.	13.6.6	A.7.8.4

Masonry Chimneys

C	NC	NA	U	**HR—LMH; LS—LMH; PR—LMH.** URM CHIMNEYS: Unreinforced masonry chimneys extend above the roof surface no more than the following: for Life Safety in Low or Moderate Seismicity, 3 times the least dimension of the chimney; for Life Safety in High Seismicity and for Position Retention in any seismicity, 2 times the least dimension of the chimney.	13.6.7	A.7.9.1
C	NC	NA	U	**HR—LMH; LS—LMH; PR—LMH.** ANCHORAGE: Masonry chimneys are anchored at each floor level, at the topmost ceiling level, and at the roof.	13.6.7	A.7.9.2

Stairs

C	NC	NA	U	**HR—not required; LS—LMH; PR—LMH.** STAIR ENCLOSURES: Hollow-clay tile or unreinforced masonry walls around stair enclosures are restrained out of plane and have height-to-thickness ratios not greater than the following: for Life Safety in Low or Moderate Seismicity, 15-to-1; for Life Safety in High Seismicity and for Position Retention in any seismicity, 12-to-1.	13.6.2 13.6.8	A.7.10.1
C	NC	NA	U	**HR—not required; LS—LMH; PR—LMH.** STAIR DETAILS: The connection between the stairs and the structure does not rely on post-installed anchors in concrete or masonry, and the stair details are capable of accommodating the drift calculated using the Quick Check procedure of Section 4.4.3.1 for moment-frame structures or 0.5 in. for all other structures without including any lateral stiffness contribution from the stairs.	13.6.8	A.7.10.2

Contents and Furnishings

C	NC	NA	U	**HR—LMH; LS—MH; PR—MH.** INDUSTRIAL STORAGE RACKS: Industrial storage racks or pallet racks more than 12 ft high meet the requirements of ANSI/RMI MH 16.1 as modified by ASCE 7, Chapter 15.	13.8.1	A.7.11.1
C	NC	NA	U	**HR—not required; LS—H; PR—MH.** TALL NARROW CONTENTS: Contents more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 are anchored to the structure or to each other.	13.8.2	A.7.11.2
C	NC	NA	U	**HR—not required; LS—H; PR—H.** FALL-PRONE CONTENTS: Equipment, stored items, or other contents weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level are braced or otherwise restrained.	13.8.2	A.7.11.3
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** ACCESS FLOORS: Access floors more than 9 in. (229 mm) high are braced.	13.6.10	A.7.11.4
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** EQUIPMENT ON ACCESS FLOORS: Equipment and other contents supported by access floor systems are anchored or braced to the structure independent of the access floor.	13.7.7 13.6.10	A.7.11.5
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** SUSPENDED CONTENTS: Items suspended without lateral bracing are free to swing from or move with the structure from which they are suspended without damaging themselves or adjoining components.	13.8.2	A.7.11.6

Mechanical and Electrical Equipment

C	NC	NA	U	**HR—not required; LS—H; PR—H.** FALL-PRONE EQUIPMENT: Equipment weighing more than 20 lb (9.1 kg) whose center of mass is more than 4 ft (1.2 m) above the adjacent floor level, and which is not in-line equipment, is braced.	13.7.1 13.7.7	A.7.12.4
C	NC	NA	U	**HR—not required; LS—H; PR—H.** IN-LINE EQUIPMENT: Equipment installed in line with a duct or piping system, with an operating weight more than 75 lb (34.0 kg), is supported and laterally braced independent of the duct or piping system.	13.7.1	A.7.12.5
C	NC	NA	U	**HR—not required; LS—H; PR—MH.** TALL NARROW EQUIPMENT: Equipment more than 6 ft (1.8 m) high with a height-to-depth or height-to-width ratio greater than 3-to-1 is anchored to the floor slab or adjacent structural walls.	13.7.1 13.7.7	A.7.12.6
C	NC	NA	U	**HR—not required; LS—not required; PR—MH.** MECHANICAL DOORS: Mechanically operated doors are detailed to operate at a story drift ratio of 0.01.	13.6.9	A.7.12.7
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** SUSPENDED EQUIPMENT: Equipment suspended without lateral bracing is free to swing from or move with the structure from which it is suspended without damaging itself or adjoining components.	13.7.1 13.7.7	A.7.12.8
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** VIBRATION ISOLATORS: Equipment mounted on vibration isolators is equipped with horizontal restraints or snubbers and with vertical restraints to resist overturning.	13.7.1	A.7.12.9

C	NC	NA	U	**HR—not required; LS—not required; PR—H.** HEAVY EQUIPMENT: Floor-supported or platform-supported equipment weighing more than 400 lb (181.4 kg) is anchored to the structure.	13.7.1 13.7.7	A.7.12.1
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** ELECTRICAL EQUIPMENT: Electrical equipment is laterally braced to the structure.	13.7.7	A.7.12.11
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** CONDUIT COUPLINGS: Conduit greater than 2.5 in. (64 mm) trade size that is attached to panels, cabinets, or other equipment and is subject to relative seismic displacement has flexible couplings or connections.	13.7.8	A.7.12.12

Piping

C	NC	NA	U	**HR—not required; LS—not required; PR—H.** FLEXIBLE COUPLINGS: Fluid and gas piping has flexible couplings.	13.7.3 13.7.5	A.7.13.2
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** FLUID AND GAS PIPING: Fluid and gas piping is anchored and braced to the structure to limit spills or leaks.	13.7.3 13.7.5	A.7.13.4
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** C-CLAMPS: One-sided C-clamps that support piping larger than 2.5 in. (64 mm) in diameter are restrained.	13.7.3 13.7.5	A.7.13.5
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** PIPING CROSSING SEISMIC JOINTS: Piping that crosses seismic joints or isolation planes or is connected to independent structures has couplings or other details to accommodate the relative seismic displacements.	13.7.3 13.7.5	A.7.13.6

Ducts

C	NC	NA	U	**HR—not required; LS—not required; PR—H.** DUCT BRACING: Rectangular ductwork larger than 6 ft^2 (0.56 m^2) in cross-sectional area and round ducts larger than 28 in. (711 mm) in diameter are braced. The maximum spacing of transverse bracing does not exceed 30 ft (9.2 m). The maximum spacing of longitudinal bracing does not exceed 60 ft (18.3 m).	13.7.6	A.7.14.2
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** DUCT SUPPORT: Ducts are not supported by piping or electrical conduit.	13.7.6	A.7.14.3
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** DUCTS CROSSING SEISMIC JOINTS: Ducts that cross seismic joints or isolation planes or are connected to independent structures have couplings or other details to accommodate the relative seismic displacements.	13.7.6	A.7.14.4

Elevators

C	NC	NA	U	**HR—not required; LS—H; PR—H.** RETAINER GUARDS: Sheaves and drums have cable retainer guards.	13.7.11	A.7.16.1
C	NC	NA	U	**HR—not required; LS—H; PR—H.** RETAINER PLATE: A retainer plate is present at the top and bottom of both car and counterweight.	13.7.11	A.7.16.2
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** ELEVATOR EQUIPMENT: Equipment, piping, and other components that are part of the elevator system are anchored.	13.7.11	A.7.16.3
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** SEISMIC SWITCH: Elevators capable of operating at speeds of 150 ft/min (0.30 m/min) or faster are equipped with seismic switches that meet the requirements of ASME A17.1 or have trigger levels set to 20% of the acceleration of gravity at the base of the structure and 50% of the acceleration of gravity in other locations.	13.7.11	A.7.16.4
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** SHAFT WALLS: Elevator shaft walls are anchored and reinforced to prevent toppling into the shaft during strong shaking.	13.7.11	A.7.16.5
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** COUNTERWEIGHT RAILS: All counterweight rails and divider beams are sized in accordance with ASME A17.1.	13.7.11	A.7.16.6
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** BRACKETS: The brackets that tie the car rails and the counterweight rail to the structure are sized in accordance with ASME A17.1.	13.7.11	A.7.16.7
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** SPREADER BRACKET: Spreader brackets are not used to resist seismic forces.	13.7.11	A.7.16.8
C	NC	NA	U	**HR—not required; LS—not required; PR—H.** GO-SLOW ELEVATORS: The building has a go-slow elevator system.	13.7.11	A.7.16.9

APPENDIX C

ASCE 41-17 Tier 1 Calculations

ASCE 41-17 Tier 1 Checklist Calculations - Abravanel Hall

Input Information

$S_{XSBSE2E} := 1.243$ — *Short period spectral acceleration at design level*

$S_{X1BSE2E} := 0.694$ — *1 second period spectral acceleration at design level*

$C_t := 0.02$ — *Eq 4-4 "All other framing systems"*

$h_n := 68\ ft$ Varies — *Eq 4-4 Height about base to roof*

$\beta := 0.75$ — *Eq 4-4 "All other framing systems"*

$M_s := \frac{3+4.5}{2} = 3.75$ — *Table 4-8*

Seismic Parameter Calculations

$T := C_t \cdot \left(\frac{h_n}{ft}\right)^{\beta} = 0.474$ — *Eq 4-4 Estimated building period*

$S_{a\_2E} := min\left(\frac{S_{X1BSE2E}}{T}, S_{XSBSE2E}\right) = 1.243$ — *Eq 4-3 Spectral acceleration at design level*

Overturning Check

$O_{min} := 0.6 \cdot S_{a\_2E} = 0.746$ — *Minimum allowable overturning ratio*

$Width_{min} := 120\ ft$ — *Building seismic system width*

$O := \frac{Width_{min}}{h_n} = 1.765$ — *Overturning ratio*

$Check_{overturning} := \text{if}\left(O > O_{min}, \text{“OK”}, \text{“Not OK”}\right) = \text{“OK”}$ — *Overturning check*

Average Wall Stress Check (Concert Hall/Lobby)

$W := 31215\ kip$ — *Total building weight (see takedown)*

$C_{C2} := 1.1$ — *Table 4-7 Displacement modification factor (C2/RM2)*

$V_1 := C_{C2} \cdot S_{a\_2E} \cdot W = \left(4.268 \cdot 10^4\right)\ kip$ — *Total Base Shear*

$t_{wall\_equiv} := 11\ in$ — *Weighted average thickness*

$L_{wall\_total} := min\left(376.5\ ft, 661.2\ ft\right) = 376.5\ ft$ — *Total Wall Length in one direction*

$A_w := t_{wall\_equiv} \cdot L_{wall\_total} = 345.125\ ft^2$ — *Total Wall Area*

$v_1 := \frac{1}{M_s} \cdot \left(\frac{V_1}{A_w}\right) = 229.011\ psi$ — *Average shear wall stress*

$v_n := 126.5\ psi$

Acceptable shear threshold per Table 17-24 Shear Stress Check

$Check_{shear\_stress} := \text{if}\left(v_1 > v_n, \text{"Not OK"}, \text{"OK"}\right) = \text{"Not OK"}$

Average Wall Stress Check (Low Roof)

$W := 1825\ kip$

Total building weight (see takedown)

$C_{C2} := 1.1$

Table 4-7 Displacement modification factor (C2/RM2)

$V_1 := C_{C2} \cdot S_{a\_2E} \cdot W = \left(2.495 \cdot 10^3\right)\ kip$

Total Base Shear

$t_{wall\_equiv} := 8\ in$

Weighted average thickness

$L_{wall\_total} := min\left(120\ ft, 150\ ft\right) = 120\ ft$

Total Wall Length in one direction

$A_w := t_{wall\_equiv} \cdot L_{wall\_total} = 80\ ft^2$

Total Wall Area

$v_1 := \frac{1}{M_s} \cdot \left(\frac{V_1}{A_w}\right) = 57.762\ psi$

Average shear wall stress

$v_n := 126.5\ psi$

Acceptable shear threshold per Table 17-24 Shear Stress Check

$Check_{shear\_stress} := \text{if}\left(v_1 > v_n, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$

Average Wall Stress Check (Addition)

$W := 2870\ kip$

Total building weight (see takedown)

$C_{RM1} := 1.0$

Table 4-7 Displacement modification factor (RM1)

$V_1 := C_{RM1} \cdot S_{a\_2E} \cdot W = \left(3.567 \cdot 10^3\right)\ kip$

Total Base Shear

$t_{wall\_equiv} := 12\ in$

Equivalent wall thickness based on grouted cells

$L_{wall\_total} := min\left(20.5\ ft, 48.5\ ft\right) = 20.5\ ft$

Total Wall Length in one direction

$A_w := t_{wall\_equiv} \cdot L_{wall\_total} = 20.5\ ft^2$

Total Wall Area

$v_1 := \frac{1}{M_s} \cdot \left(\frac{V_1}{A_w}\right) = 322.259\ psi$

Average shear wall stress

$v_n := 70\ psi$

Acceptable shear threshold per Table 17-34 Shear Stress Check

$Check_{shear\_stress} := \text{if}\left(v_1 > v_n, \text{"Not OK"}, \text{"OK"}\right) = \text{"Not OK"}$

Reinforcement Ratio Checks

12" masonry wall - Original Building

$A_{vertbar} := 0.44\ in^2$ *Vertical bar area - 1 #6*

$s_{vertbar} := 32\ in$ *Vertical bar spacing*

$A_{horizbar} := 2 \cdot 0.2\ in^2$ *Horizontal bar area - 2 #4*

$s_{horizbar} := 48\ in$ *Horizontal bar spacing*

$\rho_{vert} := \dfrac{A_{vertbar}}{s_{vertbar} \cdot 7.0\ in} = 0.002$ *Vertical reinforcement ratio, grouted at 32"*

$\rho_{horiz} := \dfrac{A_{horizbar}}{s_{horizbar} \cdot 7.0\ in} = 0.0012$ *Horizontal reinforcement ratio, grouted at 32"*

$\rho_{combined} := \rho_{vert} + \rho_{horiz} = 0.0032$ *Combined vert and horiz reinf ratio*

$Check_{Reinf\_ratio\_combined} := \text{if}\left(\rho_{combined} < 0.002, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

$Check_{Reinf\_ratio\_min} := \text{if}\left(min\left(\rho_{vert}, \rho_{horiz}\right) < 0.0007, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

10" masonry wall - Original Building

$A_{vertbar} := 0.31\ in^2$ *Vertical bar area - 1 #5*

$s_{vertbar} := 32\ in$ *Vertical bar spacing*

$A_{horizbar} := 2 \cdot 0.2\ in^2$ *Horizontal bar area - 2 #4*

$s_{horizbar} := 48\ in$ *Horizontal bar spacing*

$\rho_{vert} := \dfrac{A_{vertbar}}{s_{vertbar} \cdot 5.9\ in} = 0.0016$ *Vertical reinforcement ratio, grouted at 32"*

$\rho_{horiz} := \dfrac{A_{horizbar}}{s_{horizbar} \cdot 5.9\ in} = 0.0014$ *Horizontal reinforcement ratio, grouted at 32"*

$\rho_{combined} := \rho_{vert} + \rho_{horiz} = 0.0031$ *Combined vert and horiz reinf ratio*

$Check_{Reinf\_ratio\_combined} := \text{if}\left(\rho_{combined} < 0.002, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

$Check_{Reinf\_ratio\_min} := \text{if}\left(min\left(\rho_{vert}, \rho_{horiz}\right) < 0.0007, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

8" masonry wall - Original Building

$A_{vertbar} := 0.31\ in^2$ *Vertical bar area - 1 #5*

$s_{vertbar} := 32\ in$ *Vertical bar spacing*

$A_{horizbar} := 2 \cdot 0.11\ in^2$ *Horizontal bar area - 2 #3*

$s_{horizbar} := 48\ in$ *Horizontal bar spacing*

$\rho_{vert} := \dfrac{A_{vertbar}}{s_{vertbar} \cdot 4.9\ in} = 0.002$ *Vertical reinforcement ratio, grouted at 32"*

$\rho_{horiz} := \dfrac{A_{horizbar}}{s_{horizbar} \cdot 4.9\ in} = 0.0009$ *Horizontal reinforcement ratio, grouted at 32"*

$\rho_{combined} := \rho_{vert} + \rho_{horiz} = 0.0029$ *Combined vert and horiz reinf ratio*

$Check_{Reinf\_ratio\_combined} := \text{if}\left(\rho_{combined} < 0.002, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

$Check_{Reinf\_ratio\_min} := \text{if}\left(min\left(\rho_{vert}, \rho_{horiz}\right) < 0.0007, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

6" masonry wall - Original Building

$A_{vertbar} := 0.2\ in^2$ *Vertical bar area - 1 #4*

$s_{vertbar} := 32\ in$ *Vertical bar spacing*

$A_{horizbar} := 0.2\ in^2$ *Horizontal bar area - 1 #4*

$s_{horizbar} := 48\ in$ *Horizontal bar spacing*

$\rho_{vert} := \dfrac{A_{vertbar}}{s_{vertbar} \cdot 4\ in} = 0.0016$ *Vertical reinforcement ratio, grouted at 32"*

$\rho_{horiz} := \dfrac{A_{horizbar}}{s_{horizbar} \cdot 4\ in} = 0.001$ *Horizontal reinforcement ratio, grouted at 32"*

$\rho_{combined} := \rho_{vert} + \rho_{horiz} = 0.0026$ *Combined vert and horiz reinf ratio*

$Check_{Reinf\_ratio\_combined} := \text{if}\left(\rho_{combined} < 0.002, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

$Check_{Reinf\_ratio\_min} := \text{if}\left(min\left(\rho_{vert}, \rho_{horiz}\right) < 0.0007, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

MW-1 - Addition

$A_{vertbar} := 0.44\ in^2$ *Vertical bar area - 1 #6*

$s_{vertbar} := 32\ in$ *Vertical bar spacing*

$A_{horizbar} := 0.44\ in^2$ *Horizontal bar area - 1 #6*

$s_{horizbar} := 48\ in$ *Horizontal bar spacing*

$\rho_{vert} := \frac{A_{vertbar}}{s_{vertbar} \cdot 4.9\ in} = 0.0028$ *Vertical reinforcement ratio, grouted at 32"*

$\rho_{horiz} := \frac{A_{horizbar}}{s_{horizbar} \cdot 4.9\ in} = 0.0019$ *Horizontal reinforcement ratio, grouted at 32"*

$\rho_{combined} := \rho_{vert} + \rho_{horiz} = 0.0047$ *Combined vert and horiz reinf ratio*

$Check_{Reinf\_ratio\_combined} := \text{if}\left(\rho_{combined} < 0.002, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

$Check_{Reinf\_ratio\_min} := \text{if}\left(min\left(\rho_{vert}, \rho_{horiz}\right) < 0.0007, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

MW-2 - Addition

$A_{vertbar} := 0.44\ in^2$ *Vertical bar area - 1 #6*

$s_{vertbar} := 32\ in$ *Vertical bar spacing*

$A_{horizbar} := 0.31\ in^2$ *Horizontal bar area - 1 #5*

$s_{horizbar} := 48\ in$ *Horizontal bar spacing*

$\rho_{vert} := \frac{A_{vertbar}}{s_{vertbar} \cdot 8\ in} = 0.0017$ *Vertical reinforcement ratio, fully grouted*

$\rho_{horiz} := \frac{A_{horizbar}}{s_{horizbar} \cdot 8\ in} = 0.0008$ *Horizontal reinforcement ratio, fully grouted*

$\rho_{combined} := \rho_{vert} + \rho_{horiz} = 0.0025$ *Combined vert and horiz reinf ratio*

$Check_{Reinf\_ratio\_combined} := \text{if}\left(\rho_{combined} < 0.002, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

$Check_{Reinf\_ratio\_min} := \text{if}\left(min\left(\rho_{vert}, \rho_{horiz}\right) < 0.0007, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

MW-3 - Addition

$A_{vertbar} := 0.44\ in^2$ *Vertical bar area - 1 #6*

$s_{vertbar} := 16\ in$ *Vertical bar spacing*

$A_{horizbar} := 0.31\ in^2$ *Horizontal bar area - 1 #5*

$s_{horizbar} := 48\ in$ *Horizontal bar spacing*

$$\rho_{vert} := \frac{A_{vertbar}}{s_{vertbar} \cdot 8\ in} = 0.0034$$ *Vertical reinforcement ratio, fully grouted*

$$\rho_{horiz} := \frac{A_{horizbar}}{s_{horizbar} \cdot 8\ in} = 0.0008$$ *Horizontal reinforcement ratio, fully grouted*

$$\rho_{combined} := \rho_{vert} + \rho_{horiz} = 0.0042$$ *Combined vert and horiz reinf ratio*

$$Check_{Reinf\_ratio\_combined} := \text{if}\left(\rho_{combined} < 0.002, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$$

$$Check_{Reinf\_ratio\_min} := \text{if}\left(min\left(\rho_{vert}, \rho_{horiz}\right) < 0.0007, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$$

6" concrete wall - Original Building

$$A_{vertbar} := 0.2\ in^2$$ *Vertical bar area - 1 #4*

$$s_{vertbar} := 18\ in$$ *Vertical bar spacing*

$$A_{horizbar} := 0.2\ in^2$$ *Horizontal bar area - 1 #4*

$$s_{horizbar} := 13\ in$$ *Horizontal bar spacing*

$$\rho_{vert} := \frac{A_{vertbar}}{s_{vertbar} \cdot 6\ in} = 0.0019$$ *Vertical reinforcement ratio*

$$\rho_{horiz} := \frac{A_{horizbar}}{s_{horizbar} \cdot 6\ in} = 0.0026$$ *Horizontal reinforcement ratio*

$$Check_{Reinf\_ratio\_vert} := \text{if}\left(\rho_{vert} < 0.0012, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$$

$$Check_{Reinf\_ratio\_horiz} := \text{if}\left(\rho_{horiz} < 0.0020, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$$

8" concrete wall - Original Building

$$A_{vertbar} := 0.2\ in^2$$ *Vertical bar area - 1 #4*

$$s_{vertbar} := 16\ in$$ *Vertical bar spacing*

$$A_{horizbar} := 0.31\ in^2$$ *Horizontal bar area - 1 #5*

$$s_{horizbar} := 15\ in$$ *Horizontal bar spacing*

$$\rho_{vert} := \frac{A_{vertbar}}{s_{vertbar} \cdot 8\ in} = 0.0016$$ *Vertical reinforcement ratio*

$$\rho_{horiz} := \frac{A_{horizbar}}{s_{horizbar} \cdot 8\ in} = 0.0026$$ *Horizontal reinforcement ratio*

$Check_{Reinf\_ratio\_vert} := \text{if}\left(\rho_{vert} < 0.0012, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$

$Check_{Reinf\_ratio\_horiz} := \text{if}\left(\rho_{horiz} < 0.0020, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$

10" concrete wall - Original Building

$A_{vertbar} := 0.2\ in^2$ *Vertical bar area - 1 #4*

$s_{vertbar} := 13\ in$ *Vertical bar spacing*

$A_{horizbar} := 0.31\ in^2$ *Horizontal bar area - 1 #5*

$s_{horizbar} := 12\ in$ *Horizontal bar spacing*

$\rho_{vert} := \frac{A_{vertbar}}{s_{vertbar} \cdot 10\ in} = 0.0015$ *Vertical reinforcement ratio*

$\rho_{horiz} := \frac{A_{horizbar}}{s_{horizbar} \cdot 10\ in} = 0.0026$ *Horizontal reinforcement ratio*

$Check_{Reinf\_ratio\_vert} := \text{if}\left(\rho_{vert} < 0.0012, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$

$Check_{Reinf\_ratio\_horiz} := \text{if}\left(\rho_{horiz} < 0.0020, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$

12" concrete wall - Original Building

$A_{vertbar} := 2 \cdot 0.2\ in^2$ *Vertical bar area - 2 #4*

$s_{vertbar} := 18\ in$ *Vertical bar spacing*

$A_{horizbar} := 2 \cdot 0.2\ in^2$ *Horizontal bar area - 2 #4*

$s_{horizbar} := 13\ in$ *Horizontal bar spacing*

$\rho_{vert} := \frac{A_{vertbar}}{s_{vertbar} \cdot 12\ in} = 0.0019$ *Vertical reinforcement ratio*

$\rho_{horiz} := \frac{A_{horizbar}}{s_{horizbar} \cdot 12\ in} = 0.0026$ *Horizontal reinforcement ratio*

$Check_{Reinf\_ratio\_vert} := \text{if}\left(\rho_{vert} < 0.0012, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$

$Check_{Reinf\_ratio\_horiz} := \text{if}\left(\rho_{horiz} < 0.0020, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$

CSW-1 - Addition

$A_{vertbar} := 0.31\ in^2$ — *Vertical bar area - 1 #5*

$s_{vertbar} := 12\ in$ — *Vertical bar spacing*

$A_{horizbar} := 0.31\ in^2$ — *Horizontal bar area - 1 #5*

$s_{horizbar} := 12\ in$ — *Horizontal bar spacing*

$$\rho_{vert} := \frac{A_{vertbar}}{s_{vertbar} \cdot 8\ in} = 0.0032$$ *Vertical reinforcement ratio*

$$\rho_{horiz} := \frac{A_{horizbar}}{s_{horizbar} \cdot 8\ in} = 0.0032$$ *Horizontal reinforcement ratio*

$Check_{Reinf\_ratio\_vert} := \text{if}\left(\rho_{vert} < 0.0012, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

$Check_{Reinf\_ratio\_horiz} := \text{if}\left(\rho_{horiz} < 0.0020, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

CSW-2 - Addition

$A_{vertbar} := 2 \cdot 0.31\ in^2$ — *Vertical bar area - 2 #5*

$s_{vertbar} := 12\ in$ — *Vertical bar spacing*

$A_{horizbar} := 2 \cdot 0.31\ in^2$ — *Horizontal bar area - 2 #5*

$s_{horizbar} := 12\ in$ — *Horizontal bar spacing*

$$\rho_{vert} := \frac{A_{vertbar}}{s_{vertbar} \cdot 12\ in} = 0.0043$$ *Vertical reinforcement ratio*

$$\rho_{horiz} := \frac{A_{horizbar}}{s_{horizbar} \cdot 12\ in} = 0.0043$$ *Horizontal reinforcement ratio*

$Check_{Reinf\_ratio\_vert} := \text{if}\left(\rho_{vert} < 0.0012, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

$Check_{Reinf\_ratio\_horiz} := \text{if}\left(\rho_{horiz} < 0.0020, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

4.4.3.7 Flexible Diaphragm Connection Forces (Addition)

$$\Psi := \frac{1.3 + 1.0}{2} = 1.15$$ *Modification factor*

$w_p := 81\ psf$ — *Unit weight of wall*

$h_n := 39\ ft$ — *Height of addition*

$s_{conn1} := 6\ in$ — *Connection spacing*

$A_{p1} := s_{conn1} \cdot \frac{h_n}{2} = 9.75\ ft^2$ — *Wall area*

$T_{c1} := \Psi \cdot S_{XSBSE2E} \cdot w_p \cdot A_{p1} = \left(1.129 \cdot 10^3\right)\ lbf$ — *Connection Force*

$T_{n1} := 1850\ lbf$ — *Capcity of puddle weld on 18g deck per Verco*

$Check_{perp} := \text{if}\left(T_{c1} > T_{n1}, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

$s_{conn2} := 6\ in$ — *Connection spacing*

$A_{p2} := s_{conn2} \cdot \frac{h_n}{2} = 9.75\ ft^2$ — *Wall area*

$T_{c2} := \Psi \cdot S_{XSBSE2E} \cdot w_p \cdot A_{p2} = \left(1.129 \cdot 10^3\right)\ lbf$ — *Connection Force*

$T_{n2} := 1850\ lbf$ — *Capcity of puddle weld on 18g deck per Verco*

$Check_{para} := \text{if}\left(T_{c2} > T_{n2}, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

4.4.3.7 Stiff Diaphragm Connection Forces (Addition)

$\Psi := \frac{1.3 + 1.0}{2} = 1.15$ — *Modification factor*

$w_p := 81\ psf$ — *Unit weight of wall*

$h_n := 39\ ft$ — *Height of addition*

$s_{conn1} := 6\ in$ — *Connection spacing*

$A_{p1} := s_{conn1} \cdot \frac{h_n}{2} = 9.75\ ft^2$ — *Wall area*

$T_{c1} := \Psi \cdot S_{XSBSE2E} \cdot w_p \cdot A_{p1} = \left(1.129 \cdot 10^3\right)\ lbf$ — *Connection Force*

$T_{n1} := 1840\ lbf$ — *Min specified shear capacity for conc over metal deck*

$Check_{perp} := \text{if}\left(T_{c1} > T_{n1}, \text{“Not OK”}, \text{“OK”}\right) = \text{“OK”}$

$s_{conn2} := 6\ in$ — *Connection spacing*

$A_{p2} := s_{conn2} \cdot \frac{h_n}{2} = 9.75\ ft^2$ — *Wall area*

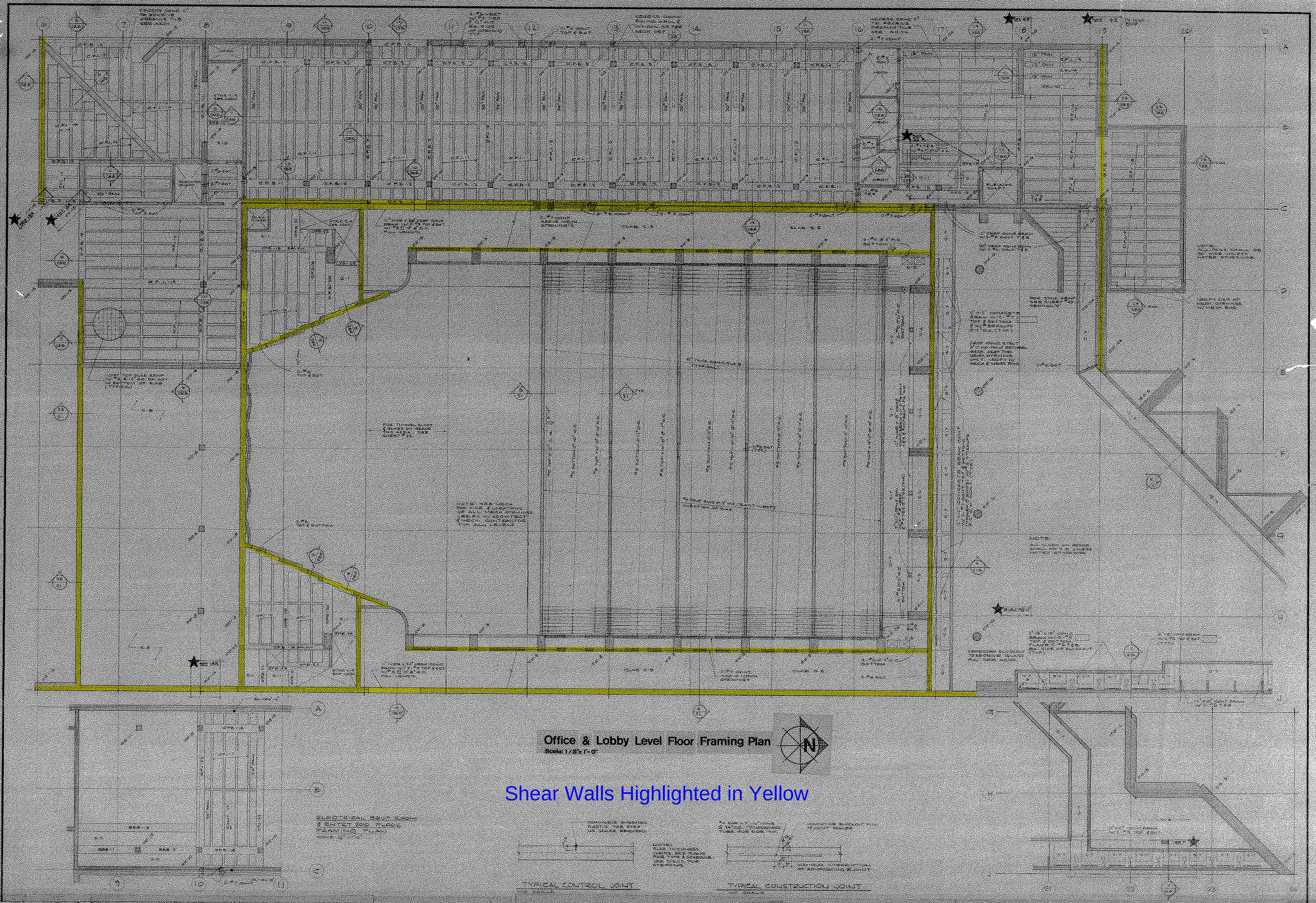
$T_{c2} := \Psi \cdot S_{XSBSE2E} \cdot w_p \cdot A_{p2} = \left(1.129 \cdot 10^3\right)$ **lbf**

Connection Force

$T_{n2} := 1840$ **lbf**

Min specified shear capacity for conc over metal deck

$Check_{para} := \text{if}\left(T_{c2} > T_{n2}, \text{"Not OK"}, \text{"OK"}\right) = \text{"OK"}$



Shear Walls Highlighted in Yellow

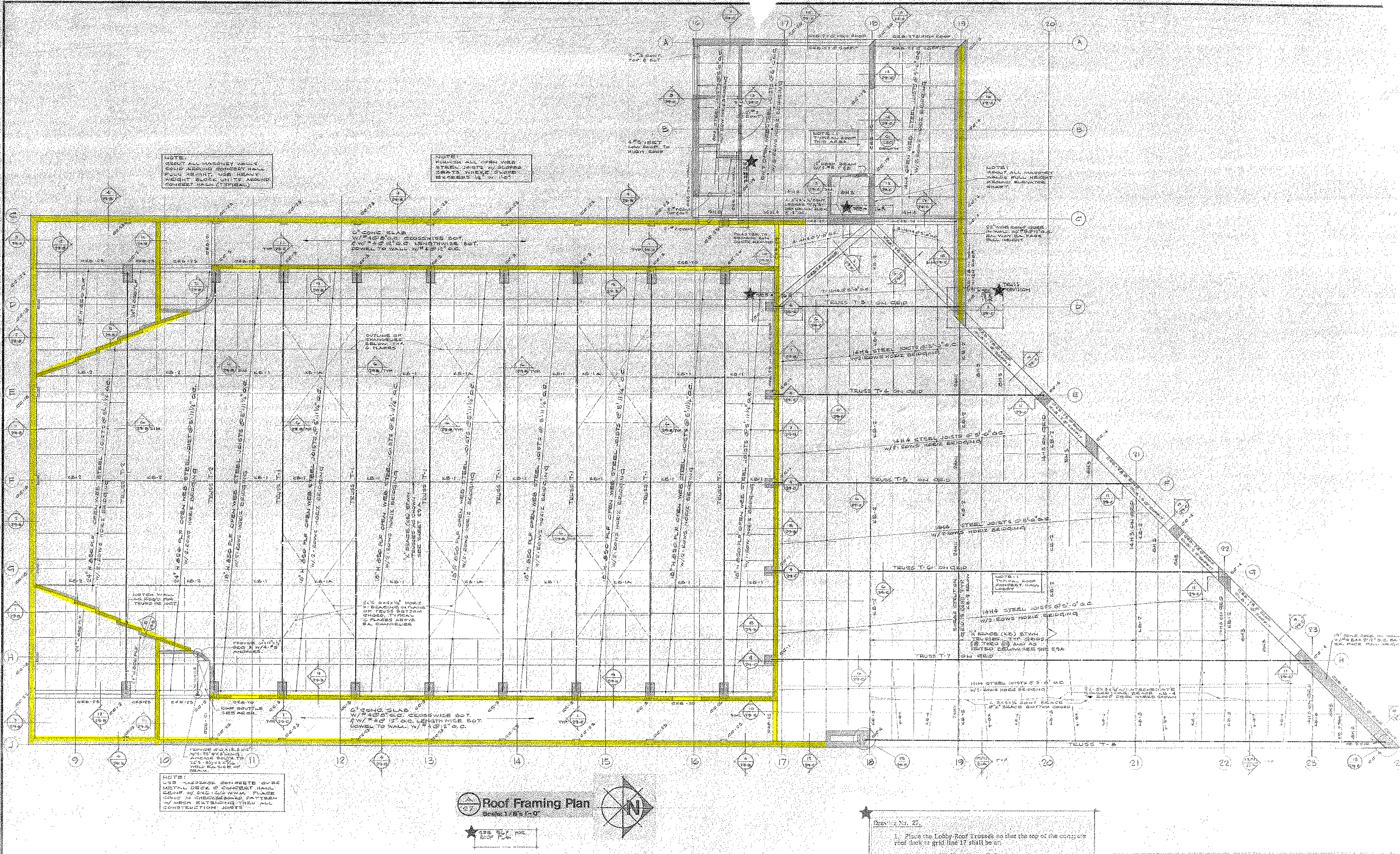
STRUCTURAL ENGINEER
REAVELEY ENGINEERING & ASSOCIATES SALT LAKE CITY, UTAH
MECHANICAL & ELECTRICAL ENGINEER
SYSKA & HENNESSY, INC. ENGINEERS NEW YORK, NEW YORK
CONSULTANT IN ACOUSTICS
DR. CYRIL M. HARRIS NEW YORK, NEW YORK
ARCHITECTURAL ADVISOR TO THE BICENTENNIAL ARTS CENTER COMMITTEE
GEORGIUS Y. CANNON SALT LAKE CITY, UTAH

BICENTENNIAL ARTS CENTER SALT LAKE CITY, UTAH

FOWLER / FERGUSON / KINGSTON / RUBEN ARCHITECTS
OQUIRRH PLACE. 350 SOUTH 400 EAST, SUITE 300. SALT LAKE CITY, UTAH, 84111 801-521-6186

DATE
REVISED
DRAWN BY

DRAWING NO.
23



Shear Walls Highlighted in Yellow

Drawing No. 27.

1. Place the Lobby Roof Trusses so that the top of the concrete roof deck at grid line 17 shall be at:

a) Elevation 165'-0" at Truss T-3.
b) Elevation 165'-2" at Truss T-4 and T-6.
c) Elevation 166'-0" at Truss T-5.
d) Elevation 164'-4" at Truss T-7.

2. The top of the concrete roof slab at the roof drain at grid line 18 midway between grid lines A and B shall be placed at elevation 116'-4". Slope structure uniformly to drain.

Drawing #27 Roof Framing Plan

Refer to pilaster CC-33 on grid line C near grid 16. This pilaster occurs in the major duct opening from vertical chase into the attic of the Concert Hall. This pilaster shall be removed and a similar pilaster shall be located at both sides of this opening.

NOTE: 1

A perlite lightweight insulating concrete slab (30 p.c.f. max.) shall be placed with a minimum thickness of 2½" above the metal deck, reinforced with #19 gage hexagonal wire mesh. See general notes sheet 7 for metal roof deck notes.

NOTE: 2

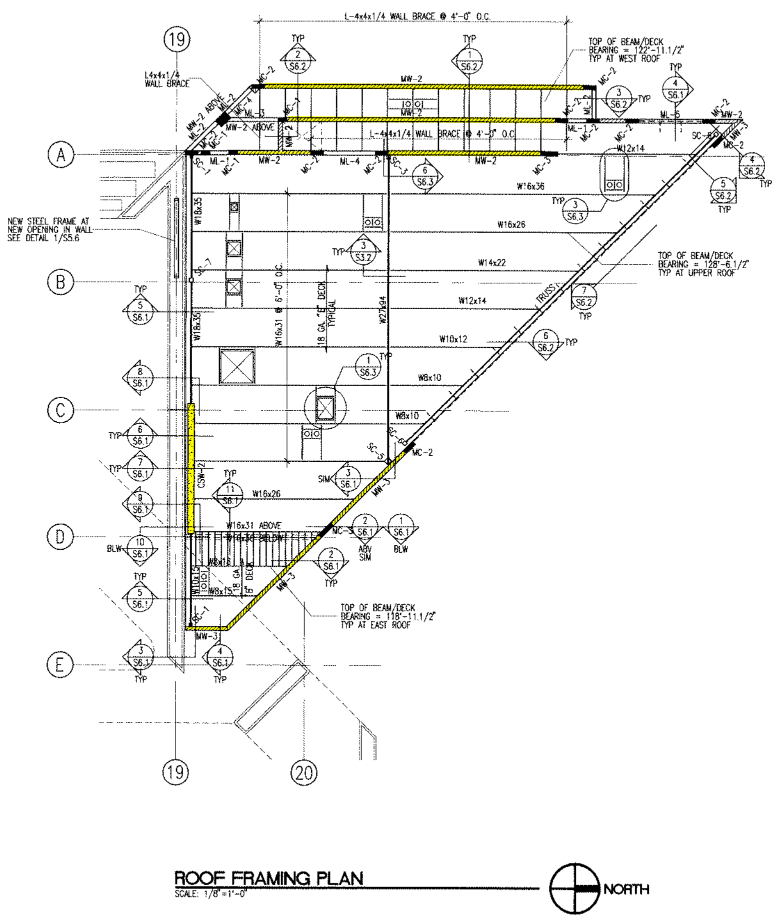
The structural steel erection contractor is responsible for method and sequence of roof framing erection. The erection contractor shall provide temporary shoring and bracing as his method of erection requires to provide adequate vertical and lateral support. Shoring and bracing shall remain in place as chosen method requires until all permanent members are in place and all final connections are completed, including all roof deck welding.

STRUCTURAL ENGINEER
REAVELEY ENGINEERING & ASSOCIATES · SALT LAKE CITY, UTAH
MECHANICAL & ELECTRICAL ENGINEER
SYSKA & HENNESSY, INC. ENGINEERS · NEW YORK, NEW YORK
CONSULTANT IN ACOUSTICS
DR. CYRIL M. HARRIS · NEW YORK, NEW YORK
ARCHITECTURAL ADVISOR TO THE BICENTENNIAL ARTS CENTER COMMITTEE
GEORGIUS Y. CANNON · SALT LAKE CITY, UTAH

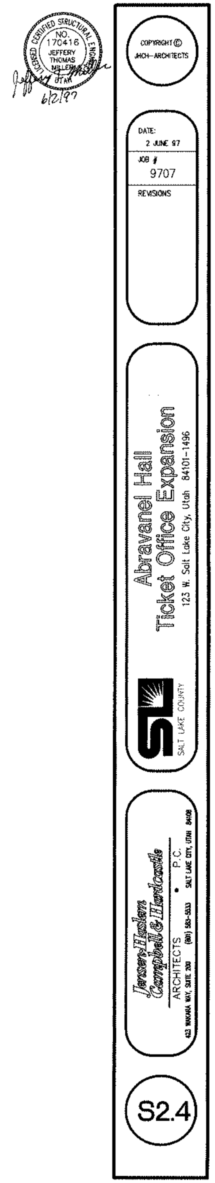
BICENTENNIAL ARTS CENTER SALT LAKE CITY, UTAH

FOWLER / FERGUSON / KINGSTON / RUBEN ARCHITECTS
OQUIRRH PLACE, 350 SOUTH 400 EAST, SUITE 300, SALT LAKE CITY, UTAH, 84111 · 801-521-6186

DATE
REVISED
DRAWN BY
DRAWING NO. 27



Shear Walls Highlighted in Yellow



Abravanel Seismic Weight - Low Roof

Description	Value	Unit	Notes
Exterior Walls (8" CMU with face brick)			
Height	7	ft	
Length	318.0833	ft	Measured from drawings
Area	2226.583	sf	
Unit Weight	86	psf	125 pcf, grouted at 32 in + 4 in clay brick
Total Weight	191.4861	kip	
Exterior Walls (12" conc with face brick)			
Height	7	ft	
Length	22.6666	ft	Measured from drawings
Area	158.6662	sf	
Unit Weight	184	psf	145 pcf * 12 in thick + 4 in clay brick
Total Weight	29.19458	kip	
Exterior Walls (8" concrete)			
Height	7	ft	
Length	97.25	ft	
Area	680.75	sf	
Unit Weight	97	psf	145 pcf * 8 in
Total Weight	66.03275	kip	
Interior Walls (8" CMU)			
Height	7	ft	
Length	177.167	ft	
Area	1240.169	sf	
Unit Weight	47	psf	125 pcf, grouted at 32 in
Total Weight	58.28794	kip	
Columns (CC-8)			
Height	7	ft	
Area	8.888889	ft	16 in x 16 in x 5 columns
Volume	62.22222	cu ft	
Unit Weight	145	pcf	
Total Weight	9.022222	kip	
Columns (CC-13)			
Height	7	ft	
Area	1	ft	12 in x 12 in x 1 column
Volume	7	cu ft	
Unit Weight	145	pcf	
Total Weight	1.015	kip	
Columns (CC-9, CC-10, CC-25)			
Height	7	ft	
Area	16	ft	16 in x 16 in x 9 columns
Volume	112	cu ft	
Unit Weight	145	pcf	
Total Weight	16.24	kip	
Concrete Beams (CRB-1, CRB-7, CRB-8, CRB-9)			
Unit Weight	460	plf	
Length	167	ft	
Total Weight	76.82	kip	

Concrete Beams (CRB-11, CRB-12, CRB-13, CRB-14, CRB-16)

Unit Weight	460	plf
Length	303	ft
Total Weight	139.38	kip

Concrete Beams (CRB-15)

Unit Weight	230	plf
Length	270.25	ft
Total Weight	62.1575	kip

Concrete Beams (CRB-6)

Unit Weight	535	plf
Length	18.3333	ft
Total Weight	9.808316	kip

Concrete Beams (CRB-17, CRB-18)

Unit Weight	420	plf
Length	153.3333	ft
Total Weight	64.39999	kip

Concrete Beams (CRB-18)

Unit Weight	575	plf
Length	50	ft
Total Weight	28.75	kip

Concrete Lintel Beams (CLB-18)

Unit Weight	420	plf
Length	97.25	ft
Total Weight	40.845	kip

Concrete Joists (CRJ-8)

Unit Weight	365	plf
Length	13.75	ft
Total Weight	5.01875	kip

Concrete Joists (CRJ-1)

Unit Weight	97	plf
Length	1970.833	ft
Total Weight	191.1708	kip

Concrete Joists (CRJ-4)

Unit Weight	97	plf
Length	439.75	ft
Total Weight	42.65575	kip

Concrete Joists (CRJ-5)

Unit Weight	97	plf
Length	123.75	ft
Total Weight	12.00375	kip

Concrete Joists (CRJ-2)

Unit Weight	97	plf
Length	1772.5	ft
Total Weight	171.9325	kip

Concrete Joists (CRJ-3)

Unit Weight	305	plf

Length	195	ft	
Total Weight	59.475	kip	
Roof Deck Slab (CRJ-1)			
Unit Weight	37.5	psf	
Area	5950	sf	
Total Weight	223.125	kip	
Roof Deck Slab (CRJ-4, CRJ-5)			
Unit Weight	37.5	psf	
Area	1875	sf	
Total Weight	70.3125	kip	
Roof Deck Slab (CRJ-2)			
Unit Weight	37.5	psf	
Area	5850	sf	
Total Weight	219.375	kip	
SDL			
Assumed SDL	0	psf	*No storage load above grade*
Total Roof Area		sf	
W SDL	0	kip	
Snow Loading			
Snow Loading	22	psf	*ASCE 7-16 Ch. 7*
20% Snow (for > 30psf)	0	psf	*Calculated, seismic load definition ASCE 41*
Total Roof Area		sf	*Measured per drawings*
W Snow	0	kip	*Calculated*
Summary			
Exterior Walls	286.7135	kip	
Interior Walls	58.28794	kip	
Columns	26.28	kip	
Beams and Joists	904.4174	kip	
Slabs	512.8125	kip	
SDL	0	kip	
Snow Loading	0	kip	
Total	1788.509	kip	

Abravanel Seismic Weight - Tier 1

Description	Value	Unit	*Notes*
Exterior Walls (10" CMU with face brick)			
Height	13	ft	
Length	557.25	ft	
Area	7244.25	sf	
Unit Weight	141	psf	125 pcf, solid grouted + 4 in clay masonry
Total Weight	1021.439	kip	
Exterior Walls (8" CMU with face brick)			
Height	13	ft	
Length	164.1667	ft	
Area	2134.167	sf	
Unit Weight	86	psf	125 pcf, grouted at 32 in + 4 in clay masonry
Total Weight	183.5384	kip	
Exterior Walls (24" concrete with face brick)			
Height	13	ft	
Length	187.5834	ft	
Area	2438.584	sf	
Unit Weight	368	psf	
Total Weight	897.399	kip	
Exterior Walls (Glass)			
Height	13	ft	
Length	117	ft	
Area	1521	sf	
Unit Weight	9.1	psf	
Total Weight	13.8411	kip	
Interior Walls (8" CMU)			
Height	13	ft	
Length	100.6666	ft	
Area	1308.666	sf	
Unit Weight	47	psf	125 pcf, grouted at 32 in
Total Weight	61.50729	kip	
Interior Walls (8" CMU - Elevator)			
Height	13	ft	
Length	49.25	ft	
Area	640.25	sf	
Unit Weight	81	psf	125 pcf, solid grouted
Total Weight	51.86025	kip	
Interior Walls (8" Concrete)			
Height	13	ft	
Length	157.5	ft	
Area	2047.5	sf	
Unit Weight	97	psf	145 pcf, 8 in thick
Total Weight	198.6075	kip	
Interior Walls (10" Concrete)			
Height	13	ft	
Length	255	ft	
Area	3315	sf	
Unit Weight	120	psf	145 pcf, 10 in thick

Total Weight	397.8	kip	

Interior Walls (≥8 " Concrete)

Height	13	ft	
Length	266	ft	
Area	3458	sf	
Unit Weight	110	psf	145 pcf, 9 in thick
Total Weight	380.38	kip	

Interior Walls (13" Concrete)

Height	13	ft	
Length	98.1667	ft	
Area	1276.167	sf	
Unit Weight	160	psf	145 pcf, 13 in thick
Total Weight	204.1867	kip	

Columns (CC-2)

Height	13	ft	
Area	16	ft	24 in x 48 in x 2 columns
Volume	208	cu ft	
Unit Weight	145	pcf	
Total Weight	30.16	kip	

Columns (CC-3, CC-26)

Height	13	ft	
Area	128	ft	24 in x 48 in x 16 columns
Volume	1664	cu ft	
Unit Weight	145	pcf	
Total Weight	241.28	kip	

Columns (CC-1)

Height	13	ft	
Area	60	ft	24 in x 72 in x 5 columns
Volume	780	cu ft	
Unit Weight	145	pcf	
Total Weight	113.1	kip	

Columns (CC-6)

Height	13	ft	
Area	12.56637	ft	24 in diameter * 4 columns
Volume	163.3628	cu ft	
Unit Weight	145	pcf	
Total Weight	23.68761	kip	

Concrete Beams (1TB-2)

Unit Weight	365	plf
Length	233	ft
Total Weight	85.045	kip

Concrete Beams (1TB-5)

Unit Weight	455	plf
Length	253	ft
Total Weight	115.115	kip

Concrete Beams (1TB-1)

Unit Weight	1675	plf
Length	94.5	ft

Total Weight	158.2875	kip	

Concrete Beams (1TB-6)

Unit Weight	245	plf	
Length	96.75	ft	
Total Weight	23.70375	kip	

Concrete Beams (1TB-7)

Unit Weight	170	plf	
Length	193.5	ft	
Total Weight	32.895	kip	

Concrete Beams (1THB-1)

Unit Weight	145	pcf	
Area	62.85	sq ft	12.57 sq ft * 5 beams
Total Weight	9.11325	kip	

Concrete Beams (CFB-18)

Unit Weight	485	plf	
Length	20.3333	ft	
Total Weight	9.861651	kip	

Concrete Beams (CRB-19)

Unit Weight	2115	plf	
Length	15.5	ft	
Total Weight	32.7825	kip	

Concrete Beams (CBB-1, CBB-2, CBB-4, CBB-5)

Unit Weight	535	plf	
Length	118.1667	ft	
Total Weight	63.21918	kip	

Concrete Beams (W21x112)

Unit Weight	110	plf	
Length	276	ft	
Total Weight	30.36	kip	

Concrete Beams (W21x44)

Unit Weight	43	plf	
Length	30	ft	
Total Weight	1.29	kip	

Concrete Lintel Beams (CRB-5)

Unit Weight	650	plf	
Length	20	ft	
Total Weight	13	kip	

Concrete Lintel Beams (CFB-23)

Unit Weight	1015	plf	
Length	18.6667	ft	
Total Weight	18.9467	kip	

Concrete Lintel Beams (CLB-8)

Unit Weight	1150	plf	
Length	25.0833	ft	
Total Weight	28.8458	kip	

Concrete Lintel Beams (CLB-1)

Unit Weight	1150	plf
Length	23.5	ft
Total Weight	27.025	kip

Concrete Lintel Beams (CLB-2)

Unit Weight	1150	plf
Length	13	ft
Total Weight	14.95	kip

Concrete Joists (1TJ-1)

Unit Weight	175	plf
Length	812.6702	ft
Total Weight	142.2173	kip

Concrete Joists (1TB-4)

Unit Weight	420	plf
Length	41	ft
Total Weight	17.22	kip

Concrete Joists (1TB-3)

Unit Weight	265	plf
Length	19.5	ft
Total Weight	5.1675	kip

Concrete Joists (1TB-8)

Unit Weight	355	plf
Length	19	ft
Total Weight	6.745	kip

Concrete Joists (CFJ-19)

Unit Weight	242	plf
Length	20.3333	ft
Total Weight	4.920659	kip

Concrete Joists (CFJ-18)

Unit Weight	365	plf
Length	58	ft
Total Weight	21.17	kip

Concrete Joists (CFJ-17)

Unit Weight	725	plf
Length	29	ft
Total Weight	21.025	kip

Concrete Joists (CFJ-16)

Unit Weight	97	plf
Length	173.3333	ft
Total Weight	16.81333	kip

Concrete Joists (CFJ-20)

Unit Weight	97	plf
Length	36.8329	ft
Total Weight	3.572791	kip

Concrete Joists (CRJ-7)

Unit Weight	290	plf

Length	8.8333	ft	
Total Weight	2.561657	kip	
Concrete Joists (CRJ-6)			
Unit Weight	97	plf	
Length	271.6667	ft	
Total Weight	26.35167	kip	
OWSJ (8H3)			
Unit Weight	5	plf	
Length	29.25	ft	
Total Weight	0.14625	kip	
Tier 1 Slab			
Unit Weight	145	psf	145 pcf, 12 in thick
Area	1690	sf	
Total Weight	245.05	kip	
Slab (S-4)			
Unit Weight	84.58333	psf	
Area	3950	sf	145 pfc, 7 in thick
Total Weight	334.1042	kip	
Slab (S-1)			
Unit Weight	72.5	psf	145 pcf, 6 in thick
Area	45	sf	
Total Weight	3.2625	kip	
Slab (CFJ-16)			
Unit Weight	50	psf	
Area	1060	sf	
Total Weight	53	kip	
Slab (S-3)			
Unit Weight	145	psf	
Area	480	sf	
Total Weight	69.6	kip	
Slab (CRJ-6)			
Unit Weight	37.5	psf	
Area	870	sf	
Total Weight	32.625	kip	
Slab (Bridge)			
Unit Weight	32	psf	
Area	966	sf	
Total Weight	30.912	kip	
20 Ga Metal Deck			
Unit Weight	2.2	psf	
Area	125	sf	
Total Weight	0.275	kip	
SDL			
Assumed SDL	0	psf	*No storage load above grade*
Total Roof Area		sf	
W SDL	0	kip	

Snow Loading

Snow Loading	22	psf	*ASCE 7-16 Ch. 7*
20% Snow (for > 30psf)	0	psf	*Calculated, seismic load definition ASCE 41*
Total Roof Area		sf	*Measured per drawings*
W Snow	0	kip	*Calculated*

Summary

Exterior Walls	2116.218	kip
Interior Walls	1294.342	kip
Columns	408.2276	kip
Beams and Joists	932.3515	kip
Slabs	768.8287	kip
SDL	0	kip
Snow Loading	0	kip
Total	5519.967	kip

Abravanel Seismic Weight - Tier 2

Description	Value	Unit	Notes
Exterior Walls (10" CMU with face brick)			
Height	13	ft	
Length	524.75	ft	
Area	6821.75	sf	
Unit Weight	141	psf	125 pcf, solid grouted + 4 in clay masonry
Total Weight	961.8668	kip	
Exterior Walls (24" concrete with face brick)			
Height	13	ft	
Length	198.5	ft	
Area	2580.5	sf	
Unit Weight	368	psf	
Total Weight	949.624	kip	
Exterior Walls (8" brick with face brick)			
Height	13	ft	
Length	53.0833	ft	
Area	690.0829	sf	
Unit Weight	118	psf	8 in clay masonry + 4 in clay masonry (see 15/28C)
Total Weight	81.42978	kip	
Exterior Walls (12" concrete with face brick)			
Height	13	ft	
Length	10.8333	ft	
Area	140.8329	sf	
Unit Weight	184	psf	145 pcf, 12" thick + 4 in clay masonry
Total Weight	25.91325	kip	
Exterior Walls (8" CMU with face brick)			
Height	13	ft	
Length	11	ft	
Area	143	sf	
Unit Weight	86	psf	125 pcf, grouted at 32 in + 4 in clay masonry
Total Weight	12.298	kip	
Exterior Walls (Glass)			
Height	13	ft	
Length	117	ft	
Area	1521	sf	
Unit Weight	9.1	psf	
Total Weight	13.8411	kip	
Interior Walls (8" CMU - Elevator)			
Height	13	ft	
Length	70.75	ft	
Area	919.75	sf	
Unit Weight	81	psf	125 pcf, solid grouted
Total Weight	74.49975	kip	
Interior Walls (8" CMU)			
Height	13	ft	
Length	55.5833	ft	
Area	722.5829	sf	
Unit Weight	47	psf	125 pcf, grouted at 32 in

Total Weight	33.9614	kip	

Interior Walls (8" Concrete)

Height	13	ft	
Length	157.5	ft	
Area	2047.5	sf	
Unit Weight	96.66667	psf	145 pcf, 8 in thick
Total Weight	197.925	kip	

Interior Walls (10" Concrete)

Height	13	ft	
Length	255	ft	
Area	3315	sf	
Unit Weight	120.8333	psf	145 pcf, 10 in thick
Total Weight	400.5625	kip	

Interior Walls (≥8 " Concrete)

Height	13	ft	
Length	297.6668	ft	
Area	3869.668	sf	
Unit Weight	112.5	psf	150 pcf, 9 in thick
Total Weight	435.3377	kip	

Interior Walls (13" Concrete)

Height	13	ft	
Length	98.5	ft	
Area	1280.5	sf	
Unit Weight	157.0833	psf	145 pcf, 13 in thick
Total Weight	201.1452	kip	

Columns (CC-2)

Height	13	ft	
Area	16	ft	24 in x 48 in x 2 columns
Volume	208	cu ft	
Unit Weight	145	pcf	
Total Weight	30.16	kip	

Columns (CC-3, CC-26)

Height	13	ft	
Area	128	ft	24 in x 48 in x 16 columns
Volume	1664	cu ft	
Unit Weight	145	pcf	
Total Weight	241.28	kip	

Columns (CC-1)

Height	13	ft	
Area	60	ft	24 in x 72 in x 5 columns
Volume	780	cu ft	
Unit Weight	145	pcf	
Total Weight	113.1	kip	

Columns (CC-6)

Height	13	ft	
Area	12.56637	ft	24 in diameter * 4 columns
Volume	163.3628	cu ft	
Unit Weight	145	pcf	
Total Weight	23.68761	kip	

Concrete Beams (2TB-2)

Unit Weight	365	plf	
Length	233	ft	
Total Weight	85.045	kip	

Concrete Beams (2TB-5)

Unit Weight	395	plf	
Length	253	ft	
Total Weight	99.935	kip	

Concrete Beams (2TB-1)

Unit Weight	1290	plf	
Length	54	ft	
Total Weight	69.66	kip	

Concrete Beams (2TB-6)

Unit Weight	245	plf	
Length	96.75	ft	
Total Weight	23.70375	kip	

Concrete Beams (2TB-7)

Unit Weight	205	plf	
Length	193.5	ft	
Total Weight	39.6675	kip	

Concrete Beams (2THB-1)

Unit Weight	145	pcf	
Area	74.15	sq ft	14.83 sq ft * 5 beams
Total Weight	10.75175	kip	

Concrete Beams (CFB-26, CFB-27)

Unit Weight	970	plf	
Length	54.6666	ft	
Total Weight	53.0266	kip	

Concrete Beams (CBB-1, CBB-2, CBB-4, CBB-5)

Unit Weight	535	plf	
Length	118.1667	ft	
Total Weight	63.21918	kip	

Concrete Beams (CBB-6)

Unit Weight	665	plf	
Length	35.9167	ft	
Total Weight	23.88461	kip	

Concrete Beams (CBB-7)

Unit Weight	535	plf	
Length	13	ft	
Total Weight	6.955	kip	

Concrete Beams (CFB-24)

Unit Weight	485	plf	
Length	22	ft	
Total Weight	10.67	kip	

Concrete Beams (CFB-25)

Unit Weight	685	plf
Length	28.0833	ft
Total Weight	19.23706	kip

Concrete Beams (CFB-23)

Unit Weight	785	plf
Length	19.1667	ft
Total Weight	15.04586	kip

Concrete Beams (CFB-18)

Unit Weight	485	plf
Length	20.5	ft
Total Weight	9.9425	kip

Concrete Lintel Beams (CLB-1)

Unit Weight	1150	plf
Length	47.8334	ft
Total Weight	55.00841	kip

Concrete Lintel Beams (CLB-2)

Unit Weight	1150	plf
Length	27	ft
Total Weight	31.05	kip

Concrete Lintel Beams (CLB-3)

Unit Weight	1150	plf
Length	25.1667	ft
Total Weight	28.94171	kip

Concrete Joists (CFJ-23, CFJ-24)

Unit Weight	97	plf
Length	389.3328	ft
Total Weight	37.76528	kip

Concrete Joists (2TB-8)

Unit Weight	225	plf
Length	19	ft
Total Weight	4.275	kip

Concrete Joists (2TB-4)

Unit Weight	325	plf
Length	54	ft
Total Weight	17.55	kip

Concrete Joists (2TJ-1)

Unit Weight	160	plf
Length	592.5	ft
Total Weight	94.8	kip

Concrete Joists (2TB-3)

Unit Weight	225	plf
Length	19.5	ft
Total Weight	4.3875	kip

Concrete Joists (CFJ-19)

Unit Weight	195	plf
Length	19.8333	ft

Total Weight	3.867494	kip	
Concrete Joists (CFJ-20)			
Unit Weight	97	plf	
Length	47.667	ft	
Total Weight	4.623699	kip	
Concrete Joists (CFJ-16)			
Unit Weight	97	plf	
Length	158.75	ft	
Total Weight	15.39875	kip	
Slab (CFJ-23, CFJ-24)			
Unit Weight	50	psf	
Area	1562	sf	
Total Weight	78.1	kip	
Slab (CFJ-20)			
Unit Weight	50	psf	
Area	267	sf	
Total Weight	13.35	kip	
Slab (CFJ-16)			
Unit Weight	50	psf	
Area	600	sf	
Total Weight	30	kip	
Slab (S-4)			
Unit Weight	84.58333	psf	145 pcf, 7 in thick
Area	4796	sf	
Total Weight	405.6617	kip	
Slab (S-3)			
Unit Weight	145	psf	145 pcf, 12 in thick
Area	430	sf	
Total Weight	62.35	kip	
Slab (S-1)			
Unit Weight	72.5	psf	145 pcf, 6 in thick
Area	32	sf	
Total Weight	2.32	kip	
Tier 2 Slab			
Unit Weight	145	psf	145 pcf, 12 in thick
Area	1680	sf	
Total Weight	243.6	kip	
Slab (Bridge)			
Unit Weight	145	psf	145 pcf, 12 in thick
Area	775	sf	
Total Weight	112.375	kip	
SDL			
Assumed SDL	0	psf	*No storage load above grade*
Total Roof Area		sf	
W SDL	0	kip	

Snow Loading

Snow Loading	22	psf	*ASCE 7-16 Ch. 7*
20% Snow (for > 30psf)	0	psf	*Calculated, seismic load definition ASCE 41*
Total Roof Area		sf	*Measured per drawings*
W Snow	0	kip	*Calculated*

Summary

Exterior Walls	2044.973	kip
Interior Walls	1343.432	kip
Columns	408.2276	kip
Beams and Joists	828.4117	kip
Slabs	947.7567	kip
SDL	0	kip
Snow Loading	0	kip
Total	5572.8	kip

Abravanel Seismic Weight - Tier 3

Description	Value	Unit	Notes
Exterior Walls (12" CMU with face brick)			
Height	21	ft	
Length	524.75	ft	
Area	11019.75	sf	
Unit Weight	162	psf	125 pcf, solid grouted + 4 in clay masonry
Total Weight	1785.2	kip	
Exterior Walls (24" concrete with face brick)			
Height	21	ft	
Length	198.5	ft	
Area	4168.5	sf	
Unit Weight	368	psf	
Total Weight	1534.008	kip	
Exterior Walls (8" brick with face brick)			
Height	21	ft	
Length	53.0833	ft	
Area	1114.749	sf	
Unit Weight	118	psf	8 in clay masonry + 4 in clay masonry (see 15/28C)
Total Weight	131.5404	kip	
Exterior Walls (12" concrete with face brick)			
Height	21	ft	
Length	10.8333	ft	
Area	227.4993	sf	
Unit Weight	184	psf	145 pcf, 12" thick + 4 in clay masonry
Total Weight	41.85987	kip	
Exterior Walls (8" CMU with face brick)			
Height	21	ft	
Length	11	ft	
Area	231	sf	
Unit Weight	86	psf	125 pcf, grouted at 32 in + 4 in clay masonry
Total Weight	19.866	kip	
Exterior Walls (Glass)			
Height	21	ft	
Length	117	ft	
Area	2457	sf	
Unit Weight	9.1	psf	
Total Weight	22.3587	kip	
Interior Walls (8" CMU - Elevator)			
Height	21	ft	
Length	70.75	ft	
Area	1485.75	sf	
Unit Weight	81	psf	125 pcf, solid grouted
Total Weight	120.3458	kip	
Interior Walls (8" CMU)			
Height	21	ft	
Length	55.5833	ft	
Area	1167.249	sf	
Unit Weight	47	psf	125 pcf, grouted at 32 in

Total Weight	54.86072	kip	

Interior Walls (8" Concrete)

Height	21	ft	
Length	157.5	ft	
Area	3307.5	sf	
Unit Weight	96.66667	psf	145 pcf, 8 in thick
Total Weight	319.725	kip	

Interior Walls (10" Concrete)

Height	21	ft	
Length	255	ft	
Area	5355	sf	
Unit Weight	120.8333	psf	145 pcf, 10 in thick
Total Weight	647.0625	kip	

Interior Walls (≥8 " Concrete)

Height	21	ft	
Length	297.6668	ft	
Area	6251.003	sf	
Unit Weight	108.75	psf	145 pcf, 9 in thick
Total Weight	679.7966	kip	

Interior Walls (13" Concrete)

Height	21	ft	
Length	98.5	ft	
Area	2068.5	sf	
Unit Weight	157.0833	psf	145 pcf, 13 in thick
Total Weight	324.9269	kip	

Columns (CC-2)

Height	21	ft	
Area	16	ft	24 in x 48 in x 2 columns
Volume	336	cu ft	
Unit Weight	145	pcf	
Total Weight	48.72	kip	

Columns (CC-3, CC-26)

Height	21	ft	
Area	128	ft	24 in x 48 in x 16 columns
Volume	2688	cu ft	
Unit Weight	145	pcf	
Total Weight	389.76	kip	

Columns (CC-1)

Height	21	ft	
Area	60	ft	24 in x 72 in x 5 columns
Volume	1260	cu ft	
Unit Weight	145	pcf	
Total Weight	182.7	kip	

Columns (CC-6)

Height	21	ft	
Area	12.56637	ft	24 in diameter * 4 columns
Volume	263.8938	cu ft	
Unit Weight	145	pcf	
Total Weight	38.2646	kip	

Concrete Beams (3TB-2)

Unit Weight	365	plf	
Length	233	ft	
Total Weight	85.045	kip	

Concrete Beams (3TB-1)

Unit Weight	1290	plf	
Length	54	ft	
Total Weight	69.66	kip	

Concrete Beams (3TB-7)

Unit Weight	245	plf	
Length	96.75	ft	
Total Weight	23.70375	kip	

Concrete Beams (3TB-8)

Unit Weight	245	plf	
Length	193.5	ft	
Total Weight	47.4075	kip	

Concrete Beams (3TB-9)

Unit Weight	1160	plf	
Length	96.75	ft	
Total Weight	112.23	kip	

Concrete Beams (3THB-1)

Unit Weight	145	pcf	
Area	175	sq ft	14.83 sq ft * 5 beams
Total Weight	25.375	kip	

Concrete Beams (CBB-1, CBB-2, CBB-4, CBB-5)

Unit Weight	535	plf	
Length	118.1667	ft	
Total Weight	63.21918	kip	

Concrete Beams (CBB-8)

Unit Weight	535	plf	
Length	27.8333	ft	
Total Weight	14.89082	kip	

Concrete Beams (CFB-24)

Unit Weight	485	plf	
Length	22	ft	
Total Weight	10.67	kip	

Concrete Beams (CFB-25)

Unit Weight	685	plf	
Length	28.0833	ft	
Total Weight	19.23706	kip	

Concrete Beams (CFB-23)

Unit Weight	785	plf	
Length	19.1667	ft	
Total Weight	15.04586	kip	

Concrete Beams (CFB-18)

Unit Weight	485	plf
Length	20.5	ft
Total Weight	9.9425	kip

Concrete Lintel Beams (CLB-1)

Unit Weight	1150	plf
Length	47.8334	ft
Total Weight	55.00841	kip

Concrete Lintel Beams (CLB-2)

Unit Weight	1150	plf
Length	27	ft
Total Weight	31.05	kip

Concrete Lintel Beams (CLB-3)

Unit Weight	1150	plf
Length	25.1667	ft
Total Weight	28.94171	kip

Concrete Joists (3TB-10)

Unit Weight	225	plf
Length	19	ft
Total Weight	4.275	kip

Concrete Joists (3TB-4)

Unit Weight	325	plf
Length	54	ft
Total Weight	17.55	kip

Concrete Joists (2TJ-1)

Unit Weight	315	plf
Length	368.6658	ft
Total Weight	116.1297	kip

Concrete Joists (3TB-3)

Unit Weight	225	plf
Length	19.5	ft
Total Weight	4.3875	kip

Concrete Joists (CFJ-19)

Unit Weight	195	plf
Length	19.8333	ft
Total Weight	3.867494	kip

Concrete Joists (CFJ-20)

Unit Weight	97	plf
Length	47.667	ft
Total Weight	4.623699	kip

Concrete Joists (CFJ-16)

Unit Weight	97	plf
Length	158.75	ft
Total Weight	15.39875	kip

Slab (CFJ-20)

Unit Weight	50	psf
Area	267	sf

Total Weight	13.35	kip	
Slab (CFJ-16)			
Unit Weight	50	psf	
Area	600	sf	
Total Weight	30	kip	
Slab (S-1)			
Unit Weight	72.5	psf	145 pcf, 6 in thick
Area	4525	sf	
Total Weight	328.0625	kip	
Slab (S-3)			
Unit Weight	145	psf	145 pcf, 12 in thick
Area	430	sf	
Total Weight	62.35	kip	
Tier 3 Slab			
Unit Weight	145	psf	145 pcf, 12 in thick
Area	1975	sf	
Total Weight	286.375	kip	
SDL			
Assumed SDL	0	psf	*No storage load above grade*
Total Roof Area		sf	
W SDL	0	kip	
Snow Loading			
Snow Loading	22	psf	*ASCE 7-16 Ch. 7*
20% Snow (for > 30psf)	0	psf	*Calculated, seismic load definition ASCE 41*
Total Roof Area		sf	*Measured per drawings*
W Snow	0	kip	*Calculated*
Summary			
Exterior Walls	3534.832	kip	
Interior Walls	2146.717	kip	
Columns	659.4446	kip	
Beams and Joists	777.659	kip	
Slabs	6973.35	kip	
SDL	0	kip	
Snow Loading	0	kip	
Total	14092	kip	

Abravanel Seismic Weight - Roof

Description	Value	Unit	Notes
Exterior Walls (12" CMU with face brick)			
Height	14.5	ft	
Length	490	ft	
Area	7105	sf	
Unit Weight	162	psf	125 pcf, solid grouted + 4 in clay masonry
Total Weight	1151.01	kip	
Exterior Walls (24" concrete with face brick)			
Height	14.5	ft	
Length	118.2501	ft	
Area	1714.626	sf	
Unit Weight	368	psf	
Total Weight	630.9825	kip	
Exterior Walls (8" CMU with face brick)			
Height	14.5	ft	
Length	44.5	ft	
Area	645.25	sf	
Unit Weight	86	psf	125 pcf, grouted at 32 in + 4 in clay masonry
Total Weight	55.4915	kip	
Exterior Walls (10/29C)			
Unit Weight	1630	plf	CRB 27 x2, 12" CMU grouted at 32", 4" brick
Length	52	ft	
Total Weight	84.76	kip	
Exterior Walls (9/29C)			
Unit Weight	2100	plf	CRB 28 x2, 8" CMU grouted at 32" x2, 4" brick
Length	85.99996	ft	
Total Weight	180.5999	kip	
Exterior Walls (Glass)			
Height	14.5	ft	
Length	117	ft	
Area	1696.5	sf	
Unit Weight	9.1	psf	
Total Weight	15.43815	kip	
Interior Walls (8" CMU - Elevator)			
Height	14.5	ft	
Length	70.75	ft	
Area	1025.875	sf	
Unit Weight	81	psf	125 pcf, solid grouted
Total Weight	83.09588	kip	
Interior Walls (8" CMU)			
Height	14.5	ft	
Length	45.4167	ft	
Area	658.5422	sf	
Unit Weight	125	psf	125 pcf, grouted at 32 in, 4" brick both sides
Total Weight	82.31777	kip	
Interior Walls (8" CMU)			
Height	14.5	ft	

Length	20.6667	ft	
Area	299.6672	sf	
Unit Weight	47	psf	125 pcf, grouted at 32 in
Total Weight	14.08436	kip	

Interior Walls (8" Concrete)

Height	14.5	ft	
Length	104	ft	
Area	1508	sf	
Unit Weight	96.66667	psf	145 pcf, 8 in thick
Total Weight	145.7733	kip	

Interior Walls (12" CMU)

Height	14.5	ft	
Length	45.3334	ft	
Area	657.3343	sf	
Unit Weight	68	psf	125 pcf, grouted at 32 in
Total Weight	44.69873	kip	

Interior Walls (10" Concrete)

Height	14.5	ft	
Length	254.6666	ft	
Area	3692.666	sf	
Unit Weight	120.8333	psf	145 pcf, 10 in thick
Total Weight	446.1971	kip	

Interior Walls (12" Concrete)

Height	14.5	ft	
Length	98.5	ft	
Area	1428.25	sf	
Unit Weight	145	psf	145 pcf, 12 in thick
Total Weight	207.0963	kip	

Columns (CC-2)

Height	14.5	ft	
Area	16	ft	24 in x 48 in x 2 columns
Volume	232	cu ft	
Unit Weight	145	pcf	
Total Weight	33.64	kip	

Columns (CC-3, CC-26)

Height	14.5	ft	
Area	128	ft	24 in x 48 in x 16 columns
Volume	1856	cu ft	
Unit Weight	145	pcf	
Total Weight	269.12	kip	

Columns (CC-1)

Height	14.5	ft	
Area	60	ft	24 in x 72 in x 5 columns
Volume	870	cu ft	
Unit Weight	145	pcf	
Total Weight	126.15	kip	

Concrete Beams (CRB-23)

Unit Weight	245	plf
Length	79.5	ft

Total Weight	19.4775	kip	
Concrete Beams (CRB-21)			
Unit Weight	245	plf	
Length	18.6666	ft	
Total Weight	4.573317	kip	
Concrete Beams (CRB-29)			
Unit Weight	435	plf	
Length	18.6666	ft	
Total Weight	8.119971	kip	
Concrete Beams (CRB-25)			
Unit Weight	365	plf	
Length	19.3333	ft	
Total Weight	7.056655	kip	
Concrete Beams (CRB-24)			
Unit Weight	580	plf	
Length	23.1667	ft	
Total Weight	13.43669	kip	
Concrete Beams (CRB-28)			
Unit Weight	690	plf	
Length	54	ft	
Total Weight	37.26	kip	
Trusses (T2)			
Total Weight	13.78	kip	6890 lb x 2 trusses
Trusses (T1)			
Total Weight	48.23	kip	6890 lb x 7 trusses
Trusses (T8)			
Total Weight	40.25	kip	
Trusses (T7)			
Total Weight	17.985	kip	
Trusses (T6)			
Total Weight	13.475	kip	
Trusses (T5)			
Total Weight	8.64	kip	
Trusses (T4)			
Total Weight	4.82	kip	
Trusses (T3)			
Total Weight	3.14	kip	
Open Web Steel Joists (8H3)			
Unit Weight	5	plf	
Length	168.4169	ft	
Total Weight	0.842085	kip	
Open Web Steel Joists (18H7)			

Unit Weight	10.4	plf	
Length	175.9998	ft	
Total Weight	1.830398	kip	
Open Web Steel Joists (14H4)			
Unit Weight	6.5	plf	
Length	1708.667	ft	
Total Weight	11.10634	kip	
Open Web Steel Joists (24H11)			
Unit Weight	17.5	plf	
Length	2956.999	ft	
Total Weight	51.74749	kip	
Open Web Steel Joists (14H3)			
Unit Weight	5.5	plf	
Length	181.4166	ft	
Total Weight	0.997791	kip	
Kicker Braces (KB-2)			
Total Weight	21.945	kip	1045 lb x 21 braces
Kicker Braces (KB-1)			
Total Weight	11.28	kip	470 lb x 24 braces
Kicker Braces (KB-3)			
Total Weight	7.542	kip	1257 lb x 6 braces
Kicker Braces (KB-4)			
Total Weight	10.35	kip	1035 lb x 10 braces
Kicker Braces (Chandelier)			
Total Weight	7.127592	kip	20.6 plf, 28-8 ft, 12 segments
Slab (Roof)			
Unit Weight	95	psf	Per seismic calcs
Area	3230	sf	
Total Weight	306.85	kip	
Slab (Concert Hall)			
Unit Weight	105	psf	Per seismic calcs
Area	16320	sf	
Total Weight	1713.6	kip	
Slab (Lobby)			
Unit Weight	5.625	psf	30 pcf max per Note 1, avg 2.25 in thick
Area	12600	sf	
Total Weight	70.875	kip	
SDL			
Assumed SDL	0	psf	*No storage load above grade*
Total Roof Area		sf	
W SDL	0	kip	
Snow Loading			
Snow Loading	22	psf	*ASCE 7-16 Ch. 7*
20% Snow (for > 30psf)	0	psf	*Calculated, seismic load definition ASCE 41*

Total Roof Area		sf	*Measured per drawings*
W Snow	0	kip	*Calculated*

Summary

Exterior Walls	2118.282	kip
Interior Walls	1023.263	kip
Columns	428.91	kip
Beams and Joists	365.0128	kip
Slabs	2091.325	kip
SDL	0	kip
Snow Loading	0	kip
Total	6026.793	kip

Abravanel Seismic Weight - Addition Level 1

Description	**Value**	**Unit**	***Notes***
Exterior Walls (MW-3)			
Height	19.33335	ft	
Length	58.16663	ft	Measured from drawings
Area	1124.556	sf	
Unit Weight	81	psf	Considered 8" CMU, fully grouted
Total Weight	91.08902	kip	
Exterior Walls (MW-2)			
Height	19.33335	ft	
Length	53.74993	ft	Measured from drawings
Area	1039.166	sf	
Unit Weight	81	psf	Considered 8" CMU, fully grouted
Total Weight	84.17246	kip	
Exterior Walls (Glass)			
Height	19.33335	ft	
Length	38	ft	
Area	734.6673	sf	
Unit Weight	9.1	psf	
Total Weight	6.685472	kip	
Interior Walls (MW-2)			
Height	19.33335	ft	
Length	1277	ft	Measured from drawings
Area	24688.69	sf	
Unit Weight	81	psf	Considered 8" CMU, fully grouted
Total Weight	1999.784	kip	
Interior Walls (MW-1)			
Height	19.33335	ft	
Length	61.66663	ft	Measured from drawings
Area	1192.223	sf	
Unit Weight	47	psf	Considered 8" CMU grouted at 32 in
Total Weight	56.03446	kip	
Interior Walls (CSW-2)			
Height	19.33335	ft	
Length	20.5	ft	Measured from drawings
Area	396.3337	sf	
Unit Weight	145	psf	145 pcf, 12" thick
Total Weight	57.46838	kip	
Columns (MC-4)			
Height	19.33335	ft	
Number	6	columns	
Unit Weight	306	plf	
Total Weight	35.49603	kip	
Columns (MC-5)			
Height	19.33335	ft	
Number	1	columns	
Unit Weight	613	plf	
Total Weight	11.85134	kip	

Columns (MC-3)

Height	19.33335	ft
Number	2	columns
Unit Weight	204	plf
Total Weight	7.888007	kip

Columns (MC-2)

Height	19.33335	ft
Number	13	columns
Unit Weight	153	plf
Total Weight	38.45403	kip

Columns (MC-1)

Height	19.33335	ft
Number	6	columns
Unit Weight	102	plf
Total Weight	11.83201	kip

Columns (SC-1)

Height	19.33335	ft
Number	2	columns
Unit Weight	15.62	plf
Total Weight	0.603974	kip

Columns (SC-5)

Height	19.33335	ft
Number	1	columns
Unit Weight	40.35	plf
Total Weight	0.780101	kip

Columns (SC-6)

Height	19.33335	ft
Number	2	columns
Unit Weight	27.59	plf
Total Weight	1.066814	kip

Columns (SC-7)

Height	19.33335	ft
Number	1	columns
Unit Weight	15.62	plf
Total Weight	0.301987	kip

Columns (SC-4)

Height	19.33335	ft
Number	1	columns
Unit Weight	37.69	plf
Total Weight	0.728674	kip

Columns (SC-3)

Height	19.33335	ft
Number	1	columns
Unit Weight	27.59	plf
Total Weight	0.533407	kip

Columns (SC-2)

Height	19.33335	ft
Number	1	columns

Unit Weight	23.34	plf
Total Weight	0.45124	kip

Masonry Lintels (ML-5)

Unit Weight	263.3	plf
Length	14.3334	ft
Total Weight	3.773984	kip

Masonry Lintels (ML-3)

Unit Weight	158	plf
Length	20.8332	ft
Total Weight	3.291646	kip

Masonry Lintels (ML-1)

Unit Weight	52.7	plf
Length	2.25	ft
Total Weight	0.118575	kip

Masonry Lintels (ML-4)

Unit Weight	210.7	plf
Length	7.8333	ft
Total Weight	1.650476	kip

Steel Beams (W8x10)

Unit Weight	10	plf
Length	208.1674	ft
Total Weight	2.081674	kip

Steel Beams (W10x12)

Unit Weight	12	plf
Length	28.75	ft
Total Weight	0.345	kip

Steel Beams (W10x22)

Unit Weight	22	plf
Length	8.3333	ft
Total Weight	0.183333	kip

Steel Beams (W14x22)

Unit Weight	22	plf
Length	60.3333	ft
Total Weight	1.327333	kip

Steel Beams (W16x31)

Unit Weight	31	plf
Length	171.5	ft
Total Weight	5.3165	kip

Steel Beams (W21x44)

Unit Weight	44	plf
Length	22.6667	ft
Total Weight	0.997335	kip

Steel Beams (W18x35)

Unit Weight	35	plf
Length	33.0833	ft
Total Weight	1.157916	kip

Steel Beams (W24x68)

Unit Weight	68	plf	
Length	30.8333	ft	
Total Weight	2.096664	kip	

Steel Beams (W18x40)

Unit Weight	40	plf	
Length	40.6667	ft	
Total Weight	1.626668	kip	

Steel Beams (W8x18)

Unit Weight	18	plf	
Length	15.3333	ft	
Total Weight	0.275999	kip	

Steel Beams (W21x50)

Unit Weight	50	plf	
Length	19.3333	ft	
Total Weight	0.966665	kip	

Steel Beams (WT7x15)

Unit Weight	15	plf	
Length	55.5	ft	
Total Weight	0.8325	kip	

Steel Beams (C12x20.7)

Unit Weight	20.7	plf	
Length	13.7499	ft	
Total Weight	0.284623	kip	

Steel Beams (C15x33.9)

Unit Weight	33.9	plf	
Length	40.5	ft	
Total Weight	1.37295	kip	

Steel Beams (TS14x4x5/16)

Unit Weight	36.1	plf	
Length	51.6667	ft	
Total Weight	1.865168	kip	

Slab (Conc Over Metal Deck)

Unit Weight	41.25	psf	110 pcf, avg 4.5 in thick
Area	3870	sf	
Total Weight	159.6375	kip	

SDL

Assumed SDL	0	psf	*No storage load above grade*
Total Roof Area		sf	
W SDL	0	kip	

Snow Loading

Snow Loading	22	psf	*ASCE 7-16 Ch. 7*
20% Snow (for > 30psf)	0	psf	*Calculated, seismic load definition ASCE 41*
Total Roof Area		sf	*Measured per drawings*
W Snow	0	kip	*Calculated*

Summary

Exterior Walls	181.947	kip
Interior Walls	2113.286	kip
Columns	109.99	kip
Beams and Joists	29.56501	kip
Slabs	159.6375	kip
SDL	0	kip
Snow Loading	0	kip
Total	2594.423	kip

Abravanel Seismic Weight - Addition Roof

Description	Value	Unit	*Notes*
Exterior Walls (MW-3)			
Height	9.83335	ft	
Length	47.6666	ft	Measured from drawings
Area	468.7224	sf	
Unit Weight	81	psf	Considered 8" CMU, fully grouted
Total Weight	37.96651	kip	
Exterior Walls (Glass)			
Height	9.83335	ft	
Length	65.75	ft	
Area	646.5428	sf	
Unit Weight	9.1	psf	
Total Weight	5.883539	kip	
Exterior Walls (MW-2)			
Height	9.83335	ft	
Length	58.3333	ft	Measured from drawings
Area	573.6118	sf	
Unit Weight	81	psf	Considered 8" CMU, fully grouted
Total Weight	46.46255	kip	
Interior Walls (MW-2)			
Height	9.83335	ft	
Length	100.9166	ft	Measured from drawings
Area	992.3482	sf	
Unit Weight	81	psf	Considered 8" CMU, fully grouted
Total Weight	80.38021	kip	
Interior Walls (CSW-2)			
Height	9.83335	ft	
Length	20.3333	ft	Measured from drawings
Area	199.9445	sf	
Unit Weight	145	psf	145 pcf, 12" thick
Total Weight	28.99195	kip	
Columns (MC-3)			
Height	9.83335	ft	
Number	2	columns	
Unit Weight	204	plf	
Total Weight	4.012007	kip	
Columns (MC-2)			
Height	9.83335	ft	
Number	11	columns	
Unit Weight	153	plf	
Total Weight	16.54953	kip	
Columns (MC-1)			
Height	9.83335	ft	
Number	3	columns	
Unit Weight	102	plf	
Total Weight	3.009005	kip	
Columns (MC-4)			

Height	9.83335	ft
Number	1	columns
Unit Weight	306	plf
Total Weight	3.009005	kip

Columns (SC-1)

Height	9.83335	ft
Number	2	columns
Unit Weight	15.62	plf
Total Weight	0.307194	kip

Columns (SC-5)

Height	9.83335	ft
Number	1	columns
Unit Weight	40.35	plf
Total Weight	0.396776	kip

Columns (SC-6)

Height	9.83335	ft
Number	2	columns
Unit Weight	27.59	plf
Total Weight	0.542604	kip

Columns (SC-3)

Height	9.83335	ft
Number	1	columns
Unit Weight	27.59	plf
Total Weight	0.271302	kip

Columns (SC-7)

Height	9.83335	ft
Number	1	columns
Unit Weight	15.62	plf
Total Weight	0.153597	kip

Masonry Lintels (ML-5)

Unit Weight	263.3	plf
Length	9.8333	ft
Total Weight	2.589108	kip

Masonry Lintels (ML-1)

Unit Weight	52.7	plf
Length	5.8333	ft
Total Weight	0.307415	kip

Masonry Lintels (ML-2)

Unit Weight	105.3	plf
Length	16.3333	ft
Total Weight	1.719896	kip

Masonry Lintels (ML-4)

Unit Weight	210.7	plf
Length	8.1667	ft
Total Weight	1.720724	kip

Masonry Lintels (ML-3)

Unit Weight	158	plf

Length	7.8333	ft
Total Weight	1.237661	kip

Steel Beams (W8x15)

Unit Weight	15	plf
Length	10.25	ft
Total Weight	0.15375	kip

Steel Beams (W8x18)

Unit Weight	18	plf
Length	15	ft
Total Weight	0.27	kip

Steel Beams (W16x36)

Unit Weight	36	plf
Length	61.5833	ft
Total Weight	2.216999	kip

Steel Beams (W16x31)

Unit Weight	31	plf
Length	266.4997	ft
Total Weight	8.261491	kip

Steel Beams (W16x26)

Unit Weight	26	plf
Length	60.8333	ft
Total Weight	1.581666	kip

Steel Beams (W8x10)

Unit Weight	10	plf
Length	17.3333	ft
Total Weight	0.173333	kip

Steel Beams (W10x15)

Unit Weight	15	plf
Length	14	ft
Total Weight	0.21	kip

Steel Beams (W10x12)

Unit Weight	12	plf
Length	17.8333	ft
Total Weight	0.214	kip

Steel Beams (W12x14)

Unit Weight	14	plf
Length	45.3333	ft
Total Weight	0.634666	kip

Steel Beams (W14x22)

Unit Weight	22	plf
Length	29.8333	ft
Total Weight	0.656333	kip

Steel Beams (W18x35)

Unit Weight	35	plf
Length	38.5	ft
Total Weight	1.3475	kip

Steel Beams (W27x94)

Unit Weight	94	plf	
Length	47.5833	ft	
Total Weight	4.47283	kip	

Steel Beams (L4x4x1/4)

Unit Weight	6.6	plf	
Length	156	ft	
Total Weight	1.0296	kip	

Steel Beams (TS1.5x1.5x3/16)

Unit Weight	3.04	plf	
Length	99	ft	
Total Weight	0.30096	kip	

Steel Beams (L5x3x1/4)

Unit Weight	6.6	plf	
Length	163.2501	ft	
Total Weight	1.077451	kip	

Truss

Total Weight	6.44	kip	

Slab (Metal Deck)

Unit Weight	2.9	psf	
Area	3780	sf	
Total Weight	10.962	kip	

SDL

Assumed SDL	0	psf	*No storage load above grade*
Total Roof Area		sf	
W SDL	0	kip	

Snow Loading

Snow Loading	22	psf	*ASCE 7-16 Ch. 7*
20% Snow (for > 30psf)	0	psf	*Calculated, seismic load definition ASCE 41*
Total Roof Area		sf	*Measured per drawings*
W Snow	0	kip	*Calculated*

Summary

Exterior Walls	90.3126	kip	
Interior Walls	109.3722	kip	
Columns	28.25	kip	
Beams and Joists	36.61538	kip	
Slabs	10.962	kip	
SDL	0	kip	
Snow Loading	0	kip	

Total	275.5132	kip	

Abravanel Seismic Weight - Summary

Original Building Seismic Weight

Dead Load	33000.07	kip		
Storage Live	0	kip		
Snow	0	kip		
Seismic	33000.07	kip	61	ft
Gravity	36786.97	kip	68	ft

Addition Seismic Weight

Dead Load	2869.937			
Storage Live	0			
Snow	0			
Seismic	2869.937	kip	30	ft
Gravity	3730.918	kip	39	ft

Total Weight

Seismic	35870.01	kip
Gravity	40517.88	kip

Concert Hall/Lobby

Seismic	31211.56	kip

Low Roof Alone

Seismic	1788.509	kip

Addition Alone

Seismic	2869.937	kip

APPENDIX D

Disclaimer

DISCLAIMER

The opinions and recommendations contained in this report are based on the information provided by the Owner, on-site investigation performed for this project, and ASCE 41-17 quick check calculations which were part of the Tier 1 screening. No physical testing was performed for this evaluation. This report does not address any other portions of the structure other than those mentioned, nor does it provide any warranty—either expressed or implied—for any portion of the existing structure. Architectural, mechanical, electrical, and/or plumbing conditions were not expressly evaluated except where required to complete the ASCE 41-17 Tier 1 screening.

THEATRE · PROJECTS ·

SPARANO + MOONEY **ARCHITECTURE**

Abravanel Hall

Community Engagement Summary – April 3, 2024

Process

During the masterplanning process, members of the project team from Theatre Projects, Sparano + Mooney Architecture, and Kirkegaard met with primary Abravanel Hall stakeholders, including the Salt Lake County Arts & Culture Division, UMOCA, Salt Palace Convention Center, and Utah Symphony (Abravanel Hall's primary Resident), as well as with other current and potential users of the Hall and community stakeholders.

Several in-person focus groups were held, as well as interviews, venue tours, and virtual listening sessions that were designed to gather vital insights from these key stakeholders, and comprehensive surveys were issued to those who were unable to attend sessions in-person. At each meeting SWOT analyses were conducted to understand the venue's strengths, weaknesses, opportunities, and potential threats, focused on both the presenter and the patron experience inside the Hall, including the questions: "What works well?"; “What isn’t working?”; and “What is missing?"

This vital information informed the masterplan priorities and proposed measures of success for future planning and design processes. All of the findings, including meeting notes, SWOT analyses, and survey results, are incorporated in the appendices of the 2024 Master Plan.

Key Themes

A number of key themes emerged through the engagement process. A summary of these themes is provided below, and full engagement details are included in the appendix.

1 Acoustics for unamplified sound are a defining feature; key enhancements are needed to address:
- Inconsistent sound across the stage for musicians
- Inconsistent sound for patrons in the Hall, especially on the first and second tiers
- Achieving amplified sound is challenging – adding enhanced deployable acoustic curtains would significantly improve sound

2 A key strength of Abravanel Hall is its location in the downtown core. The location can be leveraged to welcome new audiences, artists, producers, and presenters, although significant challenges exist for connectivity to adjacent amenities, facilities, and services, such as the Salt Palace and UMOCA.

3 Abravanel Hall is often seen as exclusive or “not a place for me” by both patrons and potential users. It is important to use the architecture and design to engage the community and demonstrate that the venue is an inclusive and vital cultural asset in our community.

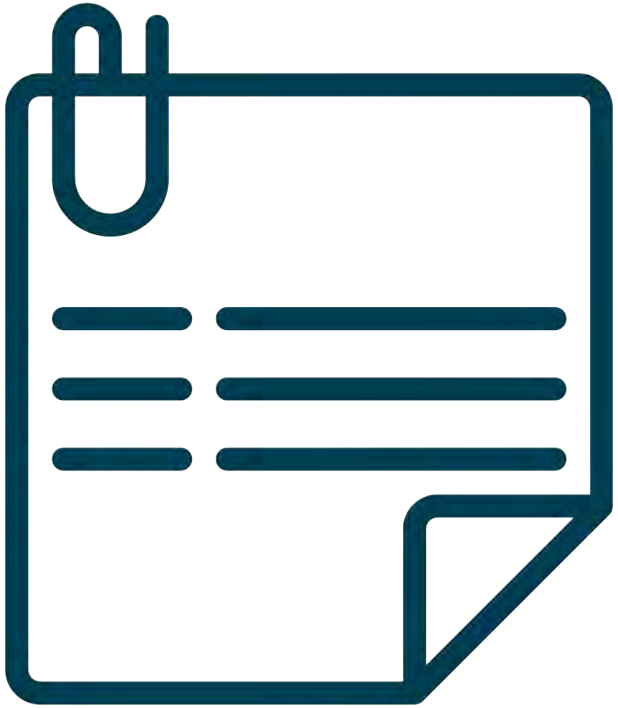
4 As currently designed, the building presents significant design challenges and certain building systems are in need of replacement and/or upgrades to meet accessibility and safety requirement, as well as the needs of current and future performances and patrons.
- Accessibility is a particular concern. It is important that the venue is brought up to current ADA standards to meet accessibility codes and best practices for all community members.
- Many key facility systems are approaching or have surpassed their useful life or no longer meet current safety standards. Systems need replacement or upgrades to avoid significant and costly operational disruptions.
- The venue’s current technology does not support modern symphony, presenter, or patron needs and expectations, and limits the types of events that could be presented.

5 The backstage and lobby spaces are significantly undersized for the types of support needed for modern presenters and performances and do not provide adequate room for artists, staff, and other event needs. The lobby size limits patron circulation and space for patron amenities (concessions, merchandise, pre-show lobby activities, etc.), and the Olympic Tower sculpture by Dale Chihuly occupies a large footprint in the space. Renovation options should be considered to allow it to complement the lobby without hindering patron circulation.

6 The existing venue wayfinding and patron circulation is outdated and needs to be updated to meet modern standards for improved circulation and to allow clear messaging for the patron experience, support of brand messaging, and promoting upcoming shows/events, and should be designed to support the County’s diversifying population.

7 The plaza is underutilized given its prominence as a downtown public space. A physical reconfiguration of the outdoor plaza could help engage (and connect the building with) the community, people attending events, and passersby, as well as make dynamic and passive activations both effective and feasible.

Appendix A:
SWOT Experience



Experience – Strengths

Strengths				
Acoustic excellence	Beauty of hall	Gold leaf – beautiful auditorium	Interesting	Using space as well as we can
Acoustics	Beauty of the concert hall (inside house)	Good communication with patrons	Interior feels grand and elevated	Variety
Artistic excellence	Chihuly	Good location for parking/access	Large open lobby	Views of city/Temple Square
Artistic product	Connection to history	Great music	Loyal, enthusiastic audience	Visual impact
Beautiful	Engaging with Chihuly	Having easily-accessible event space right next to the performance hall	Musical experience	Website
Beautiful	Entrances are accessible	Helpful staff	Natural light/beautiful windows	Welcoming volunteers
Beautiful lobby	First-timer path	Iconic building	Sound (acoustics) inside venue	

Experience – Weaknesses

Weaknesses				
Accessibility, seating	Congested ticket office	Lack of aisles in orchestra section	Need wine availability	Perceived parking problems
Accessible seating (access/ADA)	Crowded ticket office	Lack of food + beverage options + space to socialize	No accessible ticket windows	Plaza disjointed
ADA access	Easy navigation	Limited concessions	No café/kitchen/reception space on main floor	Pre-performance lectures – opportunities to learn more
Alcoholic beverages	Elevators	Lobby too small to engage people	No cross aisles	Seating uncomfortable
Audience aging	Food + beverage is mediocre	Long lines	No place for social interactions	Stairway accessibility
Awkward set-up	Gift shop/services all behind stoic counters	Massive seating space – not all seats easily available (or created equally)	Not extending subscriber base (fast enough)	Volunteer + usher actions and messaging don't always align
Beauty of facilities + environment	Hard to find ticket office, bathrooms, pre-concert talks	Need aisles! Seating is intimidating	Old/lack of tech	Wayfinding
Can't see any signage inside	Intermission crowded	Need location for pre-concert dinners	Parking – not easily accessible	

Experience – Opportunities

Opportunities			
A cry room/quiet/sensory safe space	Faster elevator/access to upper tiers	Lobby could be more engaging	Opportunities for additional performance spaces in building
Clear permanent signs	Finding small ways to alter existing spaces for short periods	Make facility a downtown hub	Opportunities to engage in face-to-face interaction with musicians
Develop education as part of performance	Flex space	Modernize for younger audiences	Partner physically with UMOCA (joint spaces)
Different types of performance (chorus, opera, etc.)	Flexible spaces, "multi-use"	More donor access for older donors	Spaces for reception/donor experiences
Engage the outdoor plaza as a place to linger	Geographical location	More spaces for education opportunities	Technology to engage learning in short fun ways
Escalators to first tier	Improved stairs	New residents in state	Upgrade lobby space/experience
Expanded use of outdoor plaza	Leader of access standard across nation	Numbering seats	

Experience – Threats

Threats				
Accessibility as an art form	City making downtown streets narrow/traffic backups	Cost	Homeless	People have entertainment at home
Attendance	Competition	Debt ceiling	Lack of opportunities for engagement with audience/donors	Recession
Being cancelled for not providing reasonable accommodations	Competition with other entertainment options – including staying home	Declining audience	Long timelines	Significant population change
Better tech in other theatres – raises audience expectations	Competitive entertainment options	Declining interest in classical music	New residents in state not connected to USUO	Streaming
Can't accommodate patron growth in event spaces	Cost	Easier entertainment at home – cheaper too	No classy restaurants/wine service in City Creek West	Uncertainty for the symphony/opera
Changing entertainment habits (e.g. "bringing a series in a weekend")	Cost	Fewer workers downtown	No parking	Unfamiliarity with classical music

Facility – Strengths

Strengths				
1st tier room	Architecture	Convenient location	Good evacuation	Legacy reputation
2747 people	Beautiful acoustics	Downtown location	Good lobby space – midsize, not too small – more places for patrons to go	Location
Acoustics	Beautiful building + hall	Effective tech	Grandeur (beautiful)	Location
Acoustics for unamplified sound	Beautiful iconic acoustics	Elegant beauty	Great civic space	Location
Acoustics/quality of experience	Beauty of facility	Event mix	Great lobby	Location
Acoustics/quality of experience	Capacity	Exciting events	History as part of community	Location
Aesthetics	Chihuly	Extraordinary acoustics	Home of the symphony	Location
Architectural gem	Consistently high-quality programming	Families love the hall	Iconic architecture	Location

Facility – Strengths Continued

Strengths				
Location	Reputation	Sound	Staff knowledge	Trax adjacent
Meeting client's needs	Reputation	Sound	Staff knowledge	USUO
Nostalgia	Seat count	Sound "special crystal sound"	Superb acoustics	Views of the city and mountains
Plaza	Seating capacity	Sound infrastructure	Symphony programming	Visibility
Prestige	Seating capacity	Staff	Technical staff	Visual + audio compliment the experience beautifully (consistent quality)
Prime location downtown	Shoebox hall atmosphere in a sellout	Staff	The acoustical excellence of the hall	Warm burnished sound
Proximity to public transit	Size (patrons it can hold)	Staff	The history of the facility in the city	
Public transit	Size of venue	Staff	The view	

Facility – Weaknesses

Weaknesses						
Accessibility	ADA issues	Alcohol laws	Back of house holding areas too limited	Building security	Congested lobby	Elevator is old and slow
Accessibility (too many ramps, level changes)	ADA seating	Alcohol limitations	Back of house limits	Cellular service	Continental seating	Elevator slow
Accessibility inside the Hall – no cross aisles	ADA seating stage extension butts right up to these seats, use 12' extension	All HVAC, plumbing, electrical	Backstage is tight for many ensembles, fire code limits	Challenging to change hall over for different types of users	Cramped lobby (bye Chihuly?)	Elitist reputation
Accessibility to families	Aged mechanical systems	Amplified sound	Backstage is too small	Chandeliers are on wenches and not hoists	Date availability	Empty feeling when not sold out
ADA	Aging primary demographic	Audience aisles as performing professional spaces	Backstage space	Chihuly	Demarcation in Salt Palace	Glass breakage
ADA access	Aisles	Audience experiences old-fashioned	Bathrooms	Comes across as single-use/organization facility	Difficult to expand tech resources	Guest artist space
ADA access	Alcohol	Audio shell is an issue	Being tied to Salt Palace	Concession lines	Digital networks	Hard to move backstage

Facility – Weaknesses Continued

Weaknesses						
Improper network distribution	Lack of projection	Loading dock	Network in the hall	No lobby storage	Old seats	Parking (lack of)
Internet accessibility	Lack of redundancy	Lobby doors	Network infrastructure	No moving lights – lighting not adequate	Only geared for symphony performances	Parking is hard for patrons
Labor costs	Lack of rehearsal space	Lobby is too small	No aisles on main floor	No parking	Overhang would be good	Patron safety
Lack of ability to get a liquor license due to the Temple	Lack of rigging points	Lobby spaces small and fragmented	No center aisles	No ways to get certain tech in the space	Parking	Physical building issues
Lack of ancillary support space	Lighting and projection abilities	Lobby vibe	No digital signage	Not enough storage + social space	Parking	Poor ADA accessibility
Lack of available dates	Limited types of spaces (front of house)	Lots of levels, dangerous ramps	No direct routes (circulation)	Office space	Parking	Poor energy efficiency
Lack of parking	Load in	Midstage curtain	No EMT room	Old equipment/systems	Parking	Production access (trucks)

Facility – Weaknesses Continued

Weaknesses			
Ramps	Social event space limitations	Storage	Wireless in hall
Reliance of Salt Palace	Sound lock	Support space	Youth protection safety plan (Hall doesn't accommodate this)
Safe access to stage	Stage in Salt Palace	Technical flexibility	
Seating – no aisles (locked in section)	Stage space is tight, no choir loft	Technical is a heavy lift – requires extra work to do anything out of the box	
Seats uncomfortable	Steam	Technology is behind the curve	
Size a bit daunting (too big)	Steam heat	Vertical access	
Slow elevator	Steep ramps flanking hall	Welcoming accessibility to diverse patrons	

Facility – Opportunities

Opportunities				
2nd patron elevator	ADA friendly	Building security	Engaged plaza	Inclusion
Ability to have more open performance days if there is a rehearsal space	ADA seating	Campus coordination with SP + UMOCA	Expand lobby spaces	Inclusivity of young audiences
Accessibility updates	Add a full rehearsal room (for symphony)	Choir loft of substantial size – 200+ benches	Exterior wall cast	Integrate ticket office
Activate plaza	Add aisles	Community engagement	Greater connection with UMOCA	Key technology is stabilizing, getting cheaper
Activate public plaza	Bathroom signage	Creating more space	Hold more variety of events	Larger lobby pre-function space
ADA access to all floors	Better merch area	Diverse population	Improve adjustable absorption	Less traditional uses of space
ADA accessibility	Big screen to rent out would be great	Engage the lobby	Improve stage flexibility	Lobby + circulation

Facility – Opportunities Continued

Opportunities				
Lobby open to public with reasons to go there	Promoter opportunities	Rent out comms company equipment at Salt Palace	Tech throughout building	Update greenroom
Make plaza a destination	Proper network distribution	Repurposed plaza	Technical flexibility	Upgraded back of house look + feel
More community members having access to venue for rental	Provide flexible new space to broaden visibility	Restrooms in star dressing rooms	Technical lighting + production with sound	Wider access backstage, size-wise
New tech/cabling	Q-sys	Rework backstage	Technical production screens + projection – captured filming	Wish lobby could be plaza size
No plaza use for anything formal	Redesign network	Salt Lake County growing	Technology improvements	
Outdoor/plaza activation	Redundancy	Simple to deploy variable acoustics	Triple tier balconies for performance is great	
Pipe organ	Removable pit seating	Staging + lighting automation	UMOCA connection	

Facility – Threats

Threats				
Access to building/parking	Budget/available funding	Focus away from downtown not meeting needs of changing population	Limitations or restriction on what we have now	Money
Aging facilities + insufficient will to improve it	Client expectations	Funding	Limited availability for new events or clients	Movement of patrons
Alcohol policy + more food options	Climate change	Government alcohol + building codes	Liquor laws	New tech that needs difficult infrastructure
Alcohol rules	Construction	Grounds maintenance	Loss of interest in classical music	No capital funding
Arsenic cloud	Crestron	Gun legislation	Money	Not adapting
Attracting new audiences	Downtown security concerns	HVAC – Steam	Money	Not expanding audience
Budget	Elevator	Internet service	Money	Not having qualified staff

Facility – Threats Continued

Threats			
Not improving concessions	Performance space during runs	Seating diminished	Terrorism
Parking	Political appetite for changes	Security	Transportation/parking
Parking	Political protests	Social distractions	We are not considered part of the downtown entertainment district
Patron dissatisfaction	Power issues	Space limitations	We spend a lot of money but not much changes for audience
People don't realize this space and activity is for them	Remain only usable by symphony	Symphony - big picture	Working with Salt Palace
People not being able to get out of center aisles	Safety	System failure	
People stuck in the elevators	Safety + security with large gatherings	Systems going down	

Appendix B: Full Engagement Session Minutes

Community Engagement – 5/25/23

WAYFINDING
- Intuitive circulation
- Bring signage up to >6′ for visibility
- Digital signage would allow for bilingual messaging
- More welcoming to some audiences

DROP-OFF AT CONCERT TIME
- Lobby
  - Flow around traffic near Chihuly
  - Consider children and disabled drop-off patterns

CONCESSIONS

SALT LAKE CITY TRAFFIC PATTERNS
- Worst traffic is at Christmas season going east on South Temple
- West Temple has a re-striping project in progress
  - Traffic control
  - Consider a swarm intersection
- Could there be an off-street drop off zone on South Temple?
- Christmas is very busy due to programming
  - Temple Square events will be back online in 2026
- Very concentrated activity near Abravanel Hall on event nights

OUTREACH
- Neighbors – meet with Salt Palace, Visit Salt Lake, City Creek, Temple Square, etc.
- Donors

SPACES
- Offices are not sacred in current location
  - Could be moved or add a level to the building for office space
- Catering kitchen
  - Too large for current use of the space
  - Used as warming kitchen, very little cooking
- Old recording studio space could be used for other purpose
- Large attic space could be also be re-used
  - This is located above lobby and accessed via ladder

FIRST TIER ROOM
- Intermission reception for donors
- Post and pre-concert receptions
- Could be an education space
- Great multi-use rooms
  - Screen has been added
- Room gets dark and less attractive

YOUTH ORCHESTRA DAY
- Case storage
- Staging for performers

MOVE PRE-CONCERT LECTURE INTO A MORE VISIBLE SPACE
- Goal is 300 people in these lectures

Community Engagement – 5/25/23

MEETING ROOM

- Rental space?
- MLM companies will use for lunches
- Multi-function space
- Overflow space for large choirs, i.e. Millennial Choir
- Muslim Civic League and other company/groups use the spaces
    - These spaces bring in groups for meetings and events
    - Brings people to AH who would not otherwise be there

IF UMOCA EXPANDS, SHARED SPACE BETWEEN AH AND UMOCA

- UMOCA does events that coordinate with Abravanel Hall
- Get a combined ticket with UMOCA and Abravanel Hall, and add bar or food service

HOLD PRE-CONCERT LECTURES IN THE LOBBY WITH CHAIRS SET UP

ROOM FOR SMALLER-SCALE PERFORMANCES DESIRABLE

EXPANDED GUEST ENTRANCE

- Extend to the street with more experiences
- Consider moving Chihuly – keep visibility from the street
- Added for the Olympics

LOBBY USED FOR SOCIAL FUNCTIONS

- Sculpture interrupts the flow of these spaces

COUNTY

- This is considered a key County rental facility

DESIGN IDEAS

- In the lobby space, remove counter and put screen framed for visuals in the space; art or moving images
- Could go up to the first tier for some events

Sparano + Mooney Architecture WILL OFFER A AND B DESIGN DIRECTIONS for discussion and consideration

Utah Foods – 5/25/23

CONCESSIONS BETWEEN COAT CHECK AND THE SHOP
- Flow is not great, there are limitations, long lines form
- It is a big area but it doesn't flow well
  - We can only get 2 lines through the concession area

PORTABLE CONCESSION STAND
- It would help to have 4-5 lines in the space
- The portable lines are taken up by tee shirt sales, etc.

LIKES THE VIDEO BOARD A LOT

STORAGE IS DIFFICULT
- Items in cabinets would be better with walk in cabinets
- They would need a locked-up area for liquor sales

TYPICALLY, STAFFED BY 4 PEOPLE IN THE MAIN STAND AND 2-3 AT SECONDARY STAND

THEY USE ALL THE SPACE
- To use the space for display – people look at the items laid out
- Water, specialty chocolates, baked goods, deli items don't sell that well, everything sells, rice crispy treats and cookies are popular
- Upscale treats did not sell well for Utah Foods
- More popular items are the basics
- There was a lot of waste
  - The specialty items need special equipment, refrigeration, etc.

HAVE KITCHEN IN SOUTH SALT LAKE
- Tried in the past, portable kiosks in the tiers but they were not very successful

ISSUE OF SPACE ON THE TIERS

CONCESSIONS ARE ONLY ON MAIN LEVEL
- 15 min. intermission is not a lot of time

TRASH AND RECYCLING
- They bring their trash out

ICE MACHINE
- Need to bring in ice
- Cold drinks are difficult to the temperature

WOULD YOU DO PRE-ORDERING?
- Angela at Eccles explored this
- But people would be on phones ordering during the performances
- There would probably be another location for the pickup on pre-order

Utah Foods – 5/25/23

WOULD CONCESSIONS WORK OUTSIDE
- Not sure
- A temporary kiosk would be great
  - Not sure if people would go outside
- Would want to get back to their seats quickly

LOADING AND UNLOADING
- Dock is too hard to deal with
- Steep ramp is problem
- Everything is brought in by the ticket office

DON'T DO A LOT OF CATERING
- Preset counter on first tier room
- Need a large open space, with singular table
- There is not a lot of room for a production line
- Refrigerator is nice
- Original purpose of the catering kitchen was for James Beard dinners at the Olympics

THE COUNTY HAS HAD TENANTS BRING IN THEIR OWN KITCHENS AT TIMES
- Has this worked well?
  - Menus are great
  - The little refrigerators hold about 1-1/2 cases of drinks, not efficient
  - Produce heat and noise
  - Ice makers would be better
- Counter is nice
  - Length for people to look at items
  - There are some but not many choices
  - Square is their POS system; they bring these devices in

LAS VEGAS
- Walk up zones at concessions
- Eccles concessions works well
- Sells out for the Broadway with stands on multiple levels

WOULD BE NICE TO HAVE MORE THAN 2 LINES; 4 WOULD BE BETTER

ACCESS IS DIFFICULT
- Better circulation into the site would be nice
- Ticket office would be better access for them
  - Will be provided for this vendor now and should help

Utah Foods – 5/25/23

PERMIT FOR JUNE 3

- Alcohol event will require double the staff
- Spanish-language groups get special permits for their events
    - Only 1 beer per person
- Permit is extra for wine permit
    - Storage is controlled
- Number of events per year is restricted
    - Up to 21 x year
- Special event permit
    - Three 30-day periods
    - Hispanic comedian, sell-out event

DRINKS ALLOWED IN THEATER

- Sales would likely double if drinks were allowed
- Now there are cup holders that are well designed
- Eccles people miss the cup holders and spillage results
- Less spillage if people are holding wine
- Almost all venues are now allowing drinks in

UNWOUND SERIES COULD BE NICE TO ALLOW DRINKS IN

SLCo Public Safety Bureau – 5/25/23

CAPTAIN AARON TORRES

SAFETY
- Security service since 1980s
- 1 deputy that covers Abravanel Hall and 1 other building
- Facility maintenance

WHAT ARE WE MOST CONCERNED ABOUT?
- Homeland Security report has been reviewed by design team
  - Perimeter security is the highest concern
  - Doors popping open is the biggest concern

ACCESS
- Locks on the doors are not very controlled
- An alarm would be useful
  - There have been break-ins
  - People entering and sleeping in the building
- Not great video surveillance
  - There are a lot of corners that are not covered in the building
- There was a 24hour presence for some time, deputies acting as receptionist and delivery
- Should this role be moved into the ticketing office?
  - Re-using ticking office in a new way
- Cameras monitoring the facility
- Priority for them would be to get a FAST response
  - Better surveillance of the building is important
  - Alarm notifications
  - Better lighting in all the areas of the building and site
- More surveillance, security force scored high cause there is some presence on site
- Perimeters of the building and site are key areas
- Breaking of glass
  - Could have better locks on the doors
  - Risk of possible glass breakage
- Ballistic glass
  - Too expensive?
  - As film on glass to protect people
- Notifications
  - Better cameras with notifications

SLCo Public Safety Bureau – 5/25/23

POLICE ENCOUNTER
- Go around back as there is not a keyed entry in the front

IS THE OFFICE SPACE USED IN THE BEST WAY?
- Would it be better to move security to ticketing

BAG CHECKS
- Symphony doesn't think it's a big risk
- Scan tickets to get into the lobby, not just at perimeter

CONSIDER TICKETS AT BOTH ABRAVANEL HALL AND UMOCA

A RENTAL CAN HIRE A SECURITY COMPANY, NOT THE RESPONSIBILITY OF POLICE, BUT THE RENTER

IS THERE A MAGNATOMETER SPACE FOR THOSE WHO BRING THAT SECURITY MEASURE?
- Conduit and data are needed for these tools
- Audience video with dark vision capabilities

EVOLVE
- New weapons detection capabilities is ready
- At the stage door and the lobby
- Is a smaller scale magnetometer

BOLLARDS
- To protect the lobby space to protect the public
- The sooner the better
    - This area is a target
- It is heated close to the doors on the north side
- Some of the clients want to put things on plaza so think about removable bollards

BACKSTAGE SECURITY
- For speakers, artists

SHERIFF OFFICE SAFETY RECOMMENDATIONS
- Double click to see full document (next page)

SLCo Public Safety Bureau – 5/25/23

SALT LAKE COUNTY
SHERIFF'S OFFICE
170 Years of Dedication

PUBLIC SAFETY BUREAU
Judicial and Facility Protection Divisions

Government Center Office: 2001 S State St #N1-870 Salt Lake City, UT 84190 385-468-9862

June 8, 2023

RE: Abravanel Hall Security Improvements

In regard to a planned remodel of Abravanel Hall, Detectives and were tasked in assessing current security and life safety systems of the facility and make recommendations for improvements and upgrades. The following document lists the results of an assessment conducted on June 5, 2023 and recommendations for improvements. It should be noted that an in depth assessment was not conducted by detectives as there was a detailed assessment completed in October 2022 by the Department of Homeland Security. This report was made available to detectives and was utilized in addition to the site inspection conducted on June 5, 2023. Since this report is being prepared in reference to a planned renovation of Abravanel Hall, we will only address physical security concerns and enhancement recommendations, not any procedural or training concerns listed in the 2022 Homeland Security report.

Respectfully submitted,

Millenial Choirs and Orchestra – 5/25/23

WHAT WORKS WELL

- Special crystal sound of the venue is great
- Lobby is unique, a little smaller, great vibe
- Downtown location is ideal
- Location is absolutely great
- Love sound of the hall; Millennial has performers in halls all over the country + this is one of the best
- Shoebox creates an amazing energy. Uniting. Energy is created in the space
- Lobby is unique –Unique Vibe
- Love the Staff
- Love triple-tier balconies
    - Singers surround the Audience
    - Perhaps in a way that allows even more performers
    - Antiphonal

WEAKNESS

- When not sold out, empty feeling
- Stage space is too small
    - Very tight for larger groups
    - Would love to see larger stage
- Choir Loft
    - The choral mecca of the world – is SLC
- No aisles on the main floor is a bit limiting for them
- Back of house space, with limited area for the larger groups
    - Tiny doors, stairs, and ramps
    - Fire code limits offstage area occupancy
    - No room to move around
- ADA seating
    - Bump stage extensions
    - Especially when use the largest stage extensions
    - Need more space
- Requires the heaviest lifting because it is not suited for other performances besides symphony work
    - Projection is hard
    - Lighting is challenging
    - Intricate knowledge is required
    - Rigging, etc. are needed so there are technical issues with extra loading time, planning, for doing things out of the box
- Backstage movement really tricky to get artists around
    - Wider access required
    - Needs a lot of choreography
    - Double doors
    - Enlarge passageways
    - It takes time to move people around
- No dedicated sound or lighting positions

Millenial Choirs and Orchestra – 5/25/23

OPPORTUNITIES
- A choir loft
  - Amsterdam choir loft is massive
  - 200-250 chorus capacity on the choir loft
  - So many ensembles in UT would like
  - Tabernacle Choir + Symphony in Abravanel would be amazing
  - Benches are nice for an ensemble
- David Geffen in NY merges the choir loft as a wrap-around
  - Integrating audience and performer in new way
- Aisles are performing spaces, performing processionals
  - Room is more dynamic
  - Surround sound concept with aisles
  - No singers in aisle ways currently
- Tiered balcony is a nice way to wrap singers around the audience
- Pipe organ

LOVED KAUFMAN HALL KANSAS CITY

THREATS
- If it works for Millenial Chorus and Orchestras it can work for anyone
- Only performance space, so constructions would be challenging for locating a temporary space
- Would like more versatility and flexibility
  - More adaptable

BEST VENUES FOR MILLENIAL CHOIR
- Segerstrom Concert Hall
  - Lots of space
  - Large stage extensions
  - Choir lofts extend into space
- Mesa Art Center
  - Very versatile
  - 1500 performers in a single night
  - Sound is great with full surround
- Strathmore
  - Acoustic concert group
  - Visually more theatrical with lighting
- Meyerson Concert Hall
  - Choir loft
  - There is a 2nd segment

LOBBY SPACE
- Carnegie Hall has no lobby
  - It is a nice size, when there is a full audience
  - More levels would help
  - It would be nice to have more spaces
- Elevator is slow and undersized
- In good weather audiences move out into the plaza – but they typically never use it
- Lobby is undersized and Plaza is oversized

Millenial Choirs and Orchestra – 5/25/23

BACK OF HOUSE
- One of the smaller back of house areas
- They need to rent space in Salt Palace to accommodate their needs
- Covered walkways would be nice
  - Walking across alleyway presents problems in weather

MILLENIAL.ORG
- 650 youth, 85 orchestra, 250 adult choir, 1000 performers

WOULD BE NICE TO HAVE A DEDICATED SOUND BOOTH AND A DEDICATED LIGHTING BOOTH AREA

HISTORY OF THE HALL
- The story of Maurice Abravanel is powerful

RENT A COM SYSTEM BETWEEN BACKSTAGE AND SALT PALACE TO COMMUNICATE BETWEEN

Utah Youth Symphony – 5/25/23

HIGH SCHOOL PRIMARILY
- 165 youth use full extension

UNEDITED CLASSICAL MUSIC
- "Not lightweight" performances

HEAVY ON THE STRINGS
- Lots of cello, male cellists

HIRE OUT MENTORS TO FILL MISSING ELEMENTS
- Sometimes up to 175

SCHEDULE
- Saturday evening performances
- During opera season as director is a US performer

REHEARSE AT THE U OF U SCHOOL OF MUSIC
- Dress rehearsal is two hours before the concert begins

USE FULL EXTENSION, ON THE FLAT WITHOUT RISERS
- They like the risers but it doesn't work for their group

SOMETIMES USE PIANOS
- Uses some USUO equipment rental (percussion, etc.)

1 PERFORMANCE EACH YEAR IN AH

70-YEAR HISTORY IN THIS ORGANIZATION

RARELY WITH A CHORUS

Utah Youth Symphony – 5/25/23

WHEN PRIMARY GROUP ON STAGE, SECONDARY IS IN GREEN ROOM
- Green room before concert gathering

AFTER PERFORMANCE
- Come to First Tier Room for dinner
  - Access isn't great
- Would like more area on the stage

STEREO MIC
- Recording provided by Abravanel Hall staff

BIGGEST COST IS STAGE EXTENSION
- Union costs with overtime

OVERALL IT'S A GREAT VENUE
- Can get a bit loud and maybe even harsh with amplified sound
- Moderate change in acoustics when audience is added – for the good

SAFETY PLAN
- Youth Protection Safety Plan
  - For minor performers for drop off and pick up of the kids
  - Sign-out is difficult
  - Parents can't go into the green room
  - Difficult to move kids through the building due to access (lack of) for parents

Utah Youth Symphony – 5/25/23

THEY BRING THEIR OWN AV PEOPLE
- OK with complexity of the systems

BIG SCREEN PROJECTIONS HAVE BEEN A BIG SUCCESS
- Renting screen and set up from Moustache Power
  - Like using the facility

CAMERAS
- Set up on first tiers and management from the third tier if easier to keep people out

FILMING CAPTURED AND UPLOADED TO YOUTUBE

HALF HOUSE IS MAIN FLOOR OR CAN PURCHACE FULL HOUSE
- Full house includes the tiers for the parents to see

FREE CONCERTS WITH NO TICKET
- Few tickets reserved for large groups

OUTDOOR SPACE
- Families wait outside in the plaza
- Outside with their kids

AUDIENCE FOR UTAH YOUTH SYMPHONY
- 1500 average
- 875 on last performance

UNAMPLIFIED USE OF SPACE

PRE-PERFORMANCE SHOW NOT NEEDED
- Can do sound check, eat, then perform

RALPH MATSON FORMER CONCERT MASTER OF UTAH SYMPHONY

EXTRAORDINARY ACOUSTICS

FUNDRAISING AROUND RAY KINGSTON P

Calvary Salt Lake Outreach Meeting – 5/26/23

Administrator of Calvary Church
- Does everything from production to tech

CHURCH SERVICES
- Easter is their big event of the year
- Every six years, when Christmas falls on a Sunday, they rent out Abravanel Hall
- Service runs an hour and a half
- Church funds are challenging so having everything in place is desired
  - Chairs, drapes, sound system
- No third-party contract required

SOUND CAPABILITIES ARE INCREDIBLE

LARGE WORSHIP TEAM
- Uses the green room providing event support
- TV works but is small
  - Hard to see what is going on in the Hall
- Hard to hear audio cues on next steps

FOYER
- For patrons who cannot enter – baby crying, or mother's nursing, etc.

LOBBY CHALLENGES
- Audio does not work in the Lobby/Foyer
  - They only use the two main doors and try to have everyone come in and out of those doors

- Nursing mother's room is not available
  - This would be nice to have a private room for nursing mothers
  - Once they set up the 1st Tier or other room it is OK for families to gather there to watch service
  - Must have live streaming of the service for recording + remote viewing
  - 4-5 mothers would be the maximum – currently have 15'x15' room

SENSORY CONTROL
- They provide disposable earplugs to reduce levels by 40 decibels
- They have "family chapel" where people can go if the music is too loud
- Multiple screens throughout their facility, this would be nice to have more screens throughout the building

ATTENDANCE
- Christmas – 1000 people including their volunteers
- Easter –1500-1700 people
  - Up to 2500 when other services or churches were closed

A NON-DENOMINATIONAL CHURCH open to all

TECHNICAL POSITIONS
- Lighting Tech – uses the lift
- Technical Director
- Creative Arts Director –In charge of band, choir, and worship team
- FOH –Hired out through union. In 2019 they brought their own sound tech

Calvary Salt Lake Outreach Meeting – 5/26/23

GROWTH IN COVID
- Last Easter service had 100 Spanish-speaking only patrons
- Strong refugee community with Venezuela

WOULD LIKE TO SEE SPANISH-SPEAKING TOOLS AVAILABLE TO EXPAND AUDIENCES

PERCEPTION ISSUES
- Post-event meetings, it came up after Christmas
  - 50% turnover and 3,000 maintaining members in their church
  - Christmas Day had limited transit options
  - Easter transit was running
  - NW parking lot was open for parking
- Parking challenges
  - Is there parking on Sunday? Not in City Creek which is challenging for their events
  - Parking was their largest complaint

LOBBY AND ARRIVAL EXPERIENCE
- Lobby opens 1 hour before the event
- There are 60 staff members and volunteers that arrive to the west of the building
  - There were some challenges bringing the staff in 1 hour in advance
- Some minor confusion about what is the entry
  - Security is somewhat of a concern

ACCESSIBILITY IS OK

PLAZA
- They had a photo booth with the Hall as backdrop
  - Easter Egg hunt could be a possibility – didn't work this year but could be used
  - Perhaps a BBQ or after-event meal

SIGNAGE

THEY HAVE USED ADJUSTABLE ACOUSTICS AND FIND IT EFFECTIVE FOR AMPLIFIED SOUND

WOULD YOU USE A SMALLER SPACE IF IT WAS ACCESSIBLE?
- They would likely use their facility, which can hold about 650. Acoustics are not great, but it is free
- Might possibly use it for a small concert

ARE THERE ANY SPACES AROUND THE COUNTRY THAT YOU FEEL ARE AMAZING FACILITIES?
- Elevation Church
- Hillsong

STRENGTHS
- Pricing is good
- They don't have to outsource all their tech support
- Easy setup in comparison to Salt Palace or other exhibition spaces
  - Saves nearly $10-15k

Calvary Salt Lake Outreach Meeting – 5/26/23

WEAKNESSES

- Back of house audio and video is not sufficient – feel disconnected from the pastor's words
- Does Abravanel create a barrier for some members of the congregation?
    - Lots of people did not know where the venue is
    - Parking was a big concern
    - Public transportation was not running on Christmas Day
- Have had issues in the past of church volunteers clashing with Abravanel Hall in-house technical staff
    - Mostly communication issues

OPPORTUNITIES

- Used the Plaza space for photography of families
- Photographer set up out there
- They used to do an Easter egg hunt outside, but logistically it was challenging and depends on the year
- Worked with another venue for producing big name Christian bands
    - New creative arts director is in the Christian worship band scene and has a lot of connections
    - Pastor has been attracting big Christian bands
- Would like to use Abravanel for other church events like regional conferences
- Union contracts recently changed to where they can record/stream events for a smaller fee and have been recording larger events. Want to do that more because they have international congregation members

TECHNOLOGY

- Would like to integrate video capture, image magnification, and recording
- Maybe in the future stream their services
- They have people nationally and even internationally follow their services
- Spanish live-streaming with translations to people's phones

HE WILL EMAIL A MAP OF HOW THEY USE THE STAGE

CHRISTMAS TREES AS BACKGROUND

SOUND

- Could use a bit of sound dampening
    - Has not used the scrim, uses a large back lit cross
    - Behind the audience on the back wall, they used the curtains behind the seats – helped a lot to dampen echoes

LIGHTING

- Previous pastor is very opinionated about lighting
- For Christmas they spent 4 hours setting up lighting

Arts & Culture Session– 5/26/23

STRENGTHS

- Staff
- Downtown
- Location
- Corner
- Proximity to hotels and businesses
- Views
- Architectural gem
- Home of symphony
- Legacy
- Built for important local organization
- Size/seating capacity
- What does a "great civic space" mean?
    - A facility that is welcoming to everyone
    - Kids love the facility. Think the space is really cool
- What is the reputation of the Hall in the community?
    - People feel it's a special/"fancy" place
    - Incredible, world-renowned acoustics

WEAKNESSES

- What's the number-one thing you would change about ADA access?
    - Slope
- No cross-aisles
- No center aisles
- Steep ramps
- Only a single channel for assistive listening. Would ideally have four channels for different translations
    - No descriptive audio
- Audio source is not good. Mics are suspended too high
- ASL is covered for most pre-planned events, but smaller one-offs it's harder to accommodate
- Elevator is really slow
- Family support for nursing or crying children
    - Restrooms are not great for diaper changing
    - Not enough ADA restrooms
    - Have had requests for adult-size changing tables
- Don't have sensory spaces
    - Would be nice to have one with good sound and screen
    - Dampening headphones for those who need a quieter environment
    - No low sensory space that is still part of larger setting
- Private area for EMT support
- Parking
    - Not enough of it, inconvenient, changing space availability, congested
    - Anyone coming from outside of downtown finds it frustrating
    - Parking is too expensive for suburban visitors
    - No dedicated parking area –changes by event
    - City Creek parking is closed onSunday, a big matinee day
    - Drop-off parking is insufficient and blocks traffic
    - Drop-off areas for disabled patrons and performers
    - Bus areas are not sufficient and not safe for kids – 70 buses for matinee performances
    - Truck parking is also challenging

Arts & Culture Session– 5/26/23

- Lobby
  - Relocate the Chihuly
  - Hang it – ideal
  - Increase the size
  - Additional areas for merchandise sales, coat check, concessions, etc.
- Internet and cell service
  - Wi-Fi is weak
  - Mobile app with ticket fails due to no Wi-Fi/cell service
  - Digital program notes
  - Separating networks between audience, FOH, tech, etc.
  - Network connectivity delivered through internet services
  - Radios often don't work well
  - Patron education signage for people who need to use phone during performances
- Digital signage and wayfinding
  - Digital capabilities with flexibility would be ideal
  - Ability to do different languages would be great
- Are there any weaknesses for the plaza?
  - Don't use it enough and feel it's more of an opportunity that needs to be considered
  - Many people don't think about using the plaza
  - Reliant on Salt Palace to take care of the grounds is challenging because we never know what's going on
  - Weather and lighting are the biggest challenges with outdoor events
- Ticket office
  - Not a great location and hard to find
  - It's just in the wrong place
  - Physical vs. digital ticket depends on the crowd
- Back of house areas
  - Terrible experience for performers
  - Not enough space and not meeting the needs of the performers
  - Not enough storage and long pathways
  - Need more practice spaces
- Front of house areas
  - No space for ushers
  - House manager office is backstage
  - No EMT area (see above)
- Green room
  - Not ideal for high-profile guests
  - Often gets used as an office for the County and other entities, awkward

OPPORTUNITIES

- Greater connection with UMOCA
- Plaza activation, with seasonal use
  - Would love shade structures for outdoor events – not a lot of local places to congregate and this could be a great location for it
  - Don't have a lot of control over the property
  - Salt Palace people don't have anywhere to go when taking a break from a convention
- Have rain and wind plan

Arts & Culture Session– 5/26/23

- Site is a bit isolated
  - City Creek is solid (blocked off) on the west side facing the venue
  - How do we get people here?
  - It is a transitory space, not a destination
  - The fountain was a destination
  - If the layout supports activation, we need to provide nice spaces to use
- The design is open but there could be planters, trees, seating etc.
  - Food truck would help
  - People are going to Gallivan and moving off this site area
- Visitors don't have a lot of info
  - Self-guided information on the site of the history of music would be great
  - Could there be an educational moment to learn about history of arts and the area?
- Improve the inside / outside experience?
- Music outside is nice
- Draw in more young people
  - Activation piece that's Instagram-worthy and draws in young people
- Accessibility to alcohol is key
- Plaza as part of AH
- Clearly mark this as the home of Utah Symphony
- Simulcast
  - Outdoor space as an extension of the Hall
  - Weather and lighting considerations
- How can this become a destination?
- Plaza events would need a bank of restrooms that could be opened when there is an outdoor event and restroom with interior access
  - All-gender restrooms in new lobby area
- Ticket office is in the larger space
- Technology and people
  - Always choose PEOPLE
  - Keep the personal touch
- Ticketing behind windows or open – not sure
- Clear instructions of where the box office is
- Gold standard ticket office in NYC Geffen with an LED wall with info on hall, there is a barista with info and counter
  - Barista could offer a tour of the facility and sell tickets
- Showtime is hectic
- Maybe a transactional point and more customer service-oriented location
- Concierge concept
- A shared campus, with Visit SL, co-located connection with Visit SL, AH, and UMOCA
- No full service, elevate concessions
- Focus on art
  - Need other destinations to help send people here
  - Uniqueness in art, sculpture garden, more happening outside that celebrates art, music outside to be in context
  - Rehearsal projected outside
- Separate rehearsal space to free up the main venue
  - Rehearsing in the main venue is important, but maybe for other times of the year
- Must be more appealing than City Creek
- Offer a cohesive environment
- Outdoor area with different composers related to USUO

Arts & Culture Session– 5/26/23

- Twilight concerts, brown bag concerts
- What might you see visually
    - Tie to music theme
    - Tie to UMOCA that brings sculpture outside (Atlanta's Woodruff as an arts center example)
    - Music needs to play the actual rehearsals for USUO live feed, share current performances
- Livestream rehearsals outside, with interactive art
    - Sound art that allows people to create sound and art
    - Visualizers to make animations into music
- Keep content flexible so that it is always new and fresh
- Bring people from Temple Square to this corner
- Banners are a low-cost way
    - Explore huge banners on wall
    - 3 sheets as digital slides
    - Special destinations that tie to the programming of music and art

THREATS
- If it became a destination, are there enough restrooms?
    - Interior/exterior access options
- Musicians' union is sensitive about music being pumped outside
- Neighbors are sensitive to light and sound outside
- Security
    - Should we provide gun lockers?
        - Some patrons say they don't feel safe unless they do have a gun
        - Threat profile changes as the space changes
    - Individual lockers for any item
    - Single use lockers for patrons
- Comfort of patrons coming downtown
- Threat profiles
    - Get people outside quickly
    - Then where do we move people outside safely and away from rooftop or hotel room shooters?
- Lockdown but no lockout
- Political appetite for change and funding
    - Long-term funding challenges. Can we do a big improvement and still maintain it?
- How do we future-proof for tech
    - Technological improvements should be sustainable
- We will provide you a long-term plan
    - 20-year plan for long-range planning
    - Provide infrastructure recommendations and long-term costs
- Thinking about what people may want over the next decade, next generation
- Combine both human and technology
- Not considered part of the downtown entertainment district
    - Need more connectivity between Eccles and Abravanel
    - Abravanel is a little bit of an island
    - Is there an urban planning style change that will make the entire area feel different and special?

Arts & Culture Session– 5/26/23

WHAT-IF IDEAS

- Needs expansion of back of house support spaces for the artist, grand piano in changing areas
- Front of house needs more storage vs. keeping everything back of house
- Make ushers feel part of the building
  - Ushers' lounge; their meeting point is in a corner
  - They need a space for programs
- House manager is same as EMT office, and a catch-all
  - They need a dedicated space
- Timing and space
- Arts & Culture staff does not have an office suite
  - There is no team feeling
  - There should be both County offices and meeting rooms and USUO offices
- We need other practice areas for the musicians

USUO Patron Experience – 5/26/23

WHO IS YOUR PATRON?

- Typical patron, especially for the masterworks, is older
- Deer Valley and films are generally younger and not as familiar with Abravanel Hall
- Many one-and -one patrons, many types of patrons

WHO IS YOUR PATRON OF THE FUTURE?

- Once you are in the Hall – it is an unparalleled experience
    - But getting into the Hall is harder
- Find a way to serve wine
- Things must be going on in the lobby that are exciting and draw patrons in
- Pre-concert events prevent social and mingling etc. – move them into the lobby
- More diversity is about a great experience
    - Make it not old and stuffy
    - Make it always unique
- There should be a post-concert experience also for sharing the experiences that took place in the Hall

STRENGTHS

- Iconic building
- Interior quality
- Natural light
- Views of city
- Interacting with Chihuly
- It is OK to get dressed up– there are not a lot of opportunities to get dressed up
    - It is an invitation to get dressed up
    - Guests can have an elevated experience, even getting ready helps someone to get excited
    - Focus groups often state this is intimidating, so breaking down these barriers
- Make the space welcoming from the venue itself and the staff
    - Could we allow the building to be open during the day to let people experience the lobby instead of locking it down?
- Performance days could have better signage for concert "tonight"
- The Plaza is very intimidating and roped off
    - Not inviting
    - One thing that worked in the past was the fountain, which funneled people into the front door
    - We need to do something with the plaza
    - Make it more of a community center
    - It's a non-profit service organization
- Location is a great strength

WEAKNESSES

- When you get here it is the transition to get into the venue
    - The performances are so great, but consider the transition to the site and through the plaza as a positive experience
- The physical space, we could invite people in better
    - Wayfinding
    - Visible signage
- Need aisles
    - Accessibility is an issue

USUO Patron Experience – 5/26/23

- Ticketing is crowded
  - Ticket office should not be in the back
  - Should be visible
  - Entering at ticketing office, windows are not visible due to the curve
  - People pause in this zone and it gets crowded and it cannot accommodate patron's needs
- Ticketing
  - People come to the office for many reasons to resolve issues, walk up
  - Future audiences will not be using the ticket office as much – but have a backup with people to help
- Wi-Fi is a challenge with the mass of the building
  - On the upper tiers the scanners don't always work
- Kiosk outside on the corner: a gathering space with information and people from Visit Salt Lake, UMOCA, etc.
- Abravanel Hall is close to thousands of people at the convention center
  - Need to draw them into the building

OPPORTUNITIES

- Plaza space
  - Should be an extension of the Hall, make it accessible, provide seating
- The large wall
  - A video of the orchestra
- See the Noorda screens
- Show what's up and coming but share what people can experience
- Screens along South Temple with digital messaging
- Outdoor stage with chamber music – free events…
- Lobby would be open with concessions and restrooms, etc.
- Better link of UMOCA and Abravanel Hall
  - They have a younger audience
  - Consider a glassed-in area for catered party; would enhance the patron experience
  - Combined gift shops with art and music combination
- How could we combine art and music in that space?
  - Sculptures in the plaza that combines art + music
- Flexible outdoor space with more uses
- Art museums
  - Bring UMOCA pieces into the lobby space each season
  - Bringing the 2 organizations could be very special
- Café tables and more seating in the lobby
  - Intermissions can be awkward so bring some activity into the lobby
  - Get people out into the lobby and give them something to do, or experience
- Right now the pre-concert lectures are well attended in the 1st tier, but how do we get more people to participate
  - Get the lectures out into public
  - Put it on the wall cast
  - Put it on screens into different spaces
- Master classes in the lobby
- Making the pre-concert info a bit more accessible
  - Materials for people to understand context and ground the works and the program
- Storytelling focus with USUO
  - Bring more info and educational materials

USUO Patron Experience – 5/26/23

- Video screens in Miami did the captions in Spanish and then also projected it on the wall
- Geofence the site with the menu of cultural activities, the exhibit at UMOCA and the performance at Abravanel Hall
- Auditorium enhancements for sight and hearing impaired
    - Assisted listening that goes right into hearing aids, etc.
- More dynamic lighting to set a mood
    - Engage new people
- Ability to zoom in on soloists
- A space for the gift shop would be nice
- Bathrooms on the main floor
    - Gendered or all-gendered restrooms
    - It would be nice to have more single-gendered restrooms
    - ADA
- Seats are a little hard to get in and out of and there are no aisles
- Make the Hall feel fuller
    - Seating colors
    - Remove top tier seats

USUO Musicians & Operations – 5/26/23

BACKSTAGE
- Need a flexible dynamic space (the design should be shown to the musicians so that they verify its functionality)
- Sometimes there is a toll on the body and it would be nice to have a space to roll out neck, incorporate a wellness piece

STRENGTHS
- Not a multi-purpose hall
- It is noticeably better than other halls in terms of sound
- Good to have a central area for everyone to be vs. access through an elevator

A SUPERBLY BEAUTIFUL SPACE

WEAKNESSES
- Lounge is nice because there is a sense of community
- Functionality
  - Too small
  - Would need more practice rooms
- Would like a rehearsal space, a practice room
- Dressing rooms are not available
  - The rooms are taken or locked
- Storage room is not functional
  - The percussionists need more room
- Water lines go near storage, leaking
- Water is needed on the level, but there has been flooding

DRESSING ROOMS WITH BATHROOMS WOULD BE NICE
- Even a sink in a dressing room would be helpful (Oboes soak their reeds, etc.)

MODULAR SHELVING
- Storage for percussion

BACKSTAGE AREA IS SLIPPERY AND STEEP
- Heavy equipment is difficult

NEED LEVEL FLOOR PLANES AND WIDE DOORS

LOCKERS ARE SHARED
- There are not lockers for everyone
- Women's dressing room is very small
  - Lockers took up space and makes the room not function
  - Lines in the bathroom
  - It is just too long
  - Sometimes they need to go to the conference center for the bathroom

NOT A LOT OF PEOPLE USE THE AREAS WHERE THE CURVED COUCHES ARE
- Maybe there could be a physical therapy area to prevent injuries
  - Equip with foam rollers, mats, exercise balls, etc.
- Lower level is very inefficient and piecemeal
  - Permanent storage solutions would be necessary

USUO Musicians & Operations – 5/26/23

MORE OPENNESS AND COLLABORATIONS AMONG THE GROUPS
- Management and musicians could be more integrate for better culture and collaboration
- The musicians don't know the management as well because of the silos

BATHROOMS ARE NEEDED
- People need to come into the lobby sometimes

HOW MIGHT WE WELCOME YOUR AUDIENCE AND COMMUNITY TO ABRAVANEL HALL?

CHIP:
- Steep grade
- Lack of storage
- Open floorplan
- Chip's office is next to stage so it was hard to work but he does like the location
    - A bit more headroom would be nice

IT IS HARD TO HEAR WHAT PEOPLE NEED ON STAGE AND GET THINGS READY
- This is solved with better technology

DRESSING ROOM WITH A BABY GRAND FOR GUEST ARTISTS TO REHEARSE

PIANIST
- They know the difference between upright and grand

FLEX SPACE
- Multi-media events, concerts that were more interactive with the audience

LIQUOR LICENSE – SECURE THIS!

DAVIES HALL IN SAN FRANCISCO

PATRON EXPERIENCE
- B experience, Chihuly infringes on the lobby space, but it is a meeting space
- Create nooks for conversation
- Redesign was dry and not warm and welcoming to sit and enjoy fun informal things in the plaza

OUTDOOR AMPHITHEATER FOR CHAMBER MUSIC OR OTHER MORE INFORMAL SPACES

ATLANTA EX:
- People get a drink and celebration is the vibe

"C" LEVEL EXPERIENCE
- It is a nice space, lobby
- But the plaza is not used
    - Plaza should be a community space
    - Public plaza is not part of the experience

USUO Musicians & Operations – 5/26/23

WINE IS AN INDUSTRY-SHARED EXPERIENCE
- Bar, restaurant, or coffee shop is expected
- There should be a wine bar...Build a restaurant, if possible
- Connect it to the box office

IT WOULD BE BETTER FOR THE COMMUNITY IF THE MUSICIANS WERE MORE ACCESSIBLE TO THE PUBLIC AFTER A PERFORMANCE

ELEVATOR IS A "C" EXPERIENCE
- There is a big line with people getting stuck
- Slow

UTAH VERSION OF A WALL CAST
- They don't want to take away audiences
- Noise pollution is an issue/concern

PLAZA SHOULD HAVE NATIVE PLANTS GARDEN WITH AN INTEGRATED SOUND SYSTEM

UMOCA COLLABORATION
- Outdoor sculpture – not permanent
    - This could change every month
- An Instagram opportunity

ONCE OF THE FEW PLACES IN LIFE THAT CREATES A GREAT SOUND VS. MORE ELECTRONICS

DO NOT CHANGE:
- Chandeliers
- Acoustics of the Hall (better to leave it alone than to mess it up)
- The citizens of Ut Co gave money to the symphony

CONCERN THERE IS OUTREACH AND NOTHING HAPPENS

CAN DO THE REBUILDING OVER 2 OR 3 SUMMERS FOR LESS DISRUPTION TO THE USE OF THE HALL

DESIGN IDEAS
- Lobby space – remove counter and put a large LED screen framed by gold for visuals in the space
    - Art or moving images
    - Could go up to the 1st tier

OFFER A AND B SOLUTIONS – WITH PROS AND CONS

Eminent Series Group Listening Session – 5/31/23

ORGANIZE INFO
- Number of events
  - 7 per year
  - 1 per month
  - 0 in December
- Seasons
  - October – late March/early April
- Online vs
  - 1000 in-person
  - Zoom is convenient

WHAT IS WORKING
- Upgraded internet with handline

WHAT ISN'T WORKING
- Accessibility
- Lighting
- Acoustical
- Theatrical
- Back of house
  - Staff
  - Speakers

OUTDOOR ACTIVATION
- Pre
- Post
  - Lecture events

INTRODUCTIONS
- Now in new states and venues
  - AH is most beautiful venue
- COVID 2020-2021; Zoom events

HOW MIGHT YOU EXPAND YOUR AUDIENCE?
- Lobby
  - Positive
    - Number of sellable seats affects 2690 that are sold
    - If then lost 100 seats it would be an issue
  - Wish they could add more seats at AH – sells 2700 seats each
  - 'Production and Product' with the live broadcast focused
    - Need an A/V tech team
  - Tech support team on site to get video and audio fees at night
  - Needs have changed over time
    - Increased needs
  - Internet if mandatory
  - Would like a redundant quality

- Sports arena in Miami
- Has AK remote control of cameras
- Remote w/ permanent wiring
- IMAGE
  - Would you use this
- What is minimum broadcast quality?

Eminent Series Group Listening Session – 5/31/23

- We invest heavily in A/V
- We have stage set up with paneling
- Rather elaborate
- Cornerstone was their A/V until recently
- Phoenix
  - Seats 5,000 venue
  - They brought the AZ team (Warner) to UT events for wining, scenic paneling cameras, etc.
  - They use two 4K cameras in-house
    - Would love to see cameras in-house
  - It would be great if they have more
  - 2 large intake screens
  - The group is updated every 4 years

NOT USING DESCRIPTIVE AUDIO

ADA ACCESSIBILITY
- Demographic has made ADA needs
- They get asked at assisted listening devices
  - The want to make it easy to (fill) accessibility
- Close captioning
  - How can we make closed-captions work better?
  - AZ has firms
- They had 4 ASL interpreters

ACCESSIBILITY
  - ADA seating is down a ramp which people note as problematic and challenging
- More seats so people don't have to use ramps
- 2nd Tier
  - Front row is difficult to get to

VOLUME OF MESSAGES IS LOW

BACK OF HOUSE
- Comfortable
- Their team is there all day
- MC arrives at 3 PM
- Speaker arrives at 6:45 pm

GREEN ROOM SHOULD BE CLEAN, JUST FOR SPEAKERS

PEOPLE/ACCESS SHOULD BE VERY CONTROLLED DUE TO SECURITY REQUIREMENTS

THIS SEASON WAS SMOOTH IN TENANTS' OF BACK OF HOUSE

STAFF IS VERY PROFESSIONAL

SOME A1 OR A2 UNION TECH ISUES ON RARE OCCASION

SECURITY GATHER IS NICE TO HAVE - HAS ALWAYS BEEN THERE

RARELY CLIMATE CONTROL CONCERNS

Eminent Series Group Listening Session – 5/31/23

STAFF GREAT TO WORK WITH
- First class, responsive crew

ARRIVAL AND DEPARTURE
- It’s easier now with Zoom and Hall is not full
- Speakers with signal can’t address security needs backup

FIRST TIER ROOM
- After each event for VIP

LIGHTING
- Uses what is in the venue
- It is working well unless there is a new lighting operator

USUO Staff Listening Session – 6/21-22/23

WHAT WORKS?
- Rethinking how audiences are engaged with USUO –what do they need, what do they want?
  - BOTH active and passive experiences
  - Live experiences
- It is a place for YOU (inclusive)
- How can we help people learn without feeling like they are in school?
- Site lines
- Visual impact
- Staircase
- Acoustics in lobby TOO loud, it affects 1st Tier room experience

WHAT DOESN'T WORK?
- Not feeling engaged as a reception place
- Disjointed
- Glass wall
- Not a single even place (floor)
- Intimidating (not for outdoor retailer visitor?)
- Make it feel like anyone can use the space, more welcoming
- Fine arts can be an "ivory tower" feel
- It is literally covered in GOLD – how to make it more porous, accessible
- When they enter people do feel comfortable
- But don't always know how to get around (wayfinding challenging)
- Perception
  - Location is "on the edge" there is not a lot in the area…DRAW people here
  - Low energy on Plaza block
  - Connect to Trax line
- Lots of potential to mixed events with Salt Palace, UMOCA, these things happened over time
- Warren Miller used to be here… its at Rose now as the crowds have moved
- No alcohol can be served
  - Catering and liquor license is a challenge and must change
- Public tours
- Behind the scenes

WHAT IS MISSING?
- Less bougie, more boozy
- Outdoor performances, semi broadcast rehearsal to the trailer
- Physically connect the SP to this area
- Public art in front of dock… bringing people
- Richie development and mixed-use development – connect and serve these zones

Community Engagement – 6/21-22/23

Q+A SESSION

- How can we Ideally / Impactfully Activate this Site?
  - Music is out there – there needs to be an increase of programs
  - Connections and walkability with TS and UMOCA
  - Keep people on the street
  - Plaza has an extended sightline
  - Grandiose / tricky because it is grand
  - Careful with urban challenges, tables and chairs
  - Gateway has successful outdoor spaces
  - Could be concert series like twilight, or smaller regularly programmed events, 3rd Thursdays, etc.
  - Gateway model: deliberate: adult swings, outdoor lighting, water feature, steps for hanging out,
  - Plaza needs more instruction
  - Nice places to sit, something fun… Art/furniture/landscape design PLUS events to bring people in
  - This space is about ART and MUSIC this is different than other places
  - Signage art is selfie site, could we have our version of LOVE
  - Extend mural trail
  - The vast expanse…Make it experiential
- View of the Hall
  - Public uproar…people have an emotional connection to building
  - The original architects were upset and the public was as well when changes were made
  - $2.1 M five years ago it was done in 2019
- Abravanel Hall is a case study about form vs function
  - We probably need to move into the plaza
  - We may not want to put too many trees…to maximize use of the plaza
  - Acoustic – even now we have moved on to other ideas about sound
- Plaza – we built it and they did not come…center stage was planned but never happened– really, we half built it…the heated driveway limited events, make it easy to use with plug and play….
- There is no staffing for programs
- Performances are difficult b/c they have to build things, cannot be in wind, sun, etc.
  - They need SHELTER maybe not enclosure, it is expensive to condition space
- Adding new expense for programming is a challenge
- We need BOTH PASSIVE ACTIVATION and ACTIVE spaces
- Add history of area (see Regent Street sidewalk, etc.) through education and art
- INVITE people in but don't require active programming, give people a reason to spend time here
- Connect what is happening inside to plaza
- A place to read, make something interactive, it has a formal face and make it feel public and easier to interact with. Pop -up ideas onsite, pop-up concert
- Get people here and then invite them INTO the building
- Let people EXPLORE, draw them into the site
- People draw people
- Communicate "Buskers welcome"
- Projections on lobby wall or exterior wall
- Look at DoTerra salt shaker installation that was planned but not executed

Community Engagement – 6/21-22/23

Q+A SESSION
- Walking path through the city STORY WALK to engage people through the city
- Walking tours – Southwest Tours – art tour through the city, guided art tour
- Typical convention schedule – connect to the convention
  - Invite people to Abravanel Hall
  - Get people before and after
  - Leisure travelers want history and local perspective
- Meeting planners plan the event
- Arts and culture map, PROVIDE this for convention center
- The County has pilot programs that might be in the plaza
  - The challenge is the cost, artist should be paid so there could be some programming but it needs funding/resources
  - Educational programs
- Grants
- Passive installation, design, landscape, etc. to draw people 24/7 is key
- Bandshell
  - Urban installation
  - Business development funds from an HOA model
  - A few years with the County –demonstrate what can be done on the plaza
    - Show things can happen so people can envision what could happen
    - County wants to expand audiences

WHOSE MISSION IS BEING SERVED?
- Is it Arts & Culture, the Hall, UMOCA? How are they different?

DO WE WANT TO ACTIVATE THE PLAZA?
- We need to resolve what the mission is and what the purpose of the plaza is
- END GOAL: draw in and make people want to know more, “I want to come back”
- Enhance the downtown experience, the UMOCA experience, the AHall experience!

Community Engagement – 6/21-22/23

Q+A SESSION
WHAT IS SUSTAINABLE?
- In 10 years, in 50 years

SOCIAL EVENT SPACE IS THE FUTURE DEMAND

VISIT SALT LAKE
- Increase exposure

WE CAN'T BUDGET HOPE – WE CAN'T MASTER PLAN HOPE

IS THERE EXCESS DEMAND FOR GALLIVAN HERE?
- There may be a performance space in the Richie development

PRAGUE
- City with Kafka kinetic art
- Make a place that conference goers can have lunch, and be inspired

SERVE THE MISSION OF UMOCA AND AHALL, BUT ALSO ENTIRE ARTS + CULTURAL COMMUNITY
- What patrons and what arts + cultural?

BOTH PASSIVE AND STATIC
- Examples: Bean and the whale are both

RESPITE IS HERE, INSPIRED SPACE, A PLACE OF PAUSE

DO NOT USE PARK, USE GREEN SPACE LANGUAGE

NEED INSTAGRAM SPOT
- Place to take your photo, have lunch and hang out a bit
- How can we create more connections b/w the 3 spaces (SP / UMOCA / Abravanel Hall)?
- How can Abravanel Hall and UMOCA better support convention Center activity and vice versa?
- Let's envision the ideal circulation on this site; How would people flow in and around the spaces?

Stakeholder Listening Session – 6/22/23

What Works Well?			
Beautiful public spaces	Home of Utah Symphony	Natural acoustics – can further improve but don't harm	Road and UTA access
Beautiful space	Iconic building	Outside aesthetic – "curbside appeal"	Size of hall
Bold sighting of staircase from the street	Iconic home of Utah Symphony	Part of cultural core for Downtown	The plaza's location downtown – its potential for unique activations
Building façade with glass communicated art and culture	Inside aesthetic – beautiful interior	Patron Experience – in regard to acoustics	Varied programming equals varied audiences
Close to public transit	Location	Prestige	
Downtown location – in middle of westward progressing development	Location in city	Program offerings with Symphony	

Stakeholder Listening Session – 6/22/23

What is Not Working?						
A lot of unactivated empty space	Can be intimidating	Downtime – a lot of space for mostly empty building	Lobby too small	Non-attender awareness	Plaza doesn't feel engaged	So many production elements require work arounds
Ability to hold large social events	Can be seen as elitist/not "for" everyone	Finishes can be overwhelming to new patrons	Look and feel relational connection with UMOCA	Not ADA friendly	Plaza hotel	Street traffic
ADA accessibility	Can feel disconnected from city	HVAC system	Mingle spaces in back of house	Only utilized during concert events most of the time	Plaza underutilized	Ticket office location – hidden
Age of building	Chihuly taking lobby space	Immediate surroundings outside of main downtown food/ drink	Needs to continue to grow new audiences	Patio/plaza – not engaging enough	Seating isn't accessible	Too many pinch points in lobby and back of house
Audience engagement	Continental seating	Interior is dated	No ability to control natural light in lobby	Pedestrian "traffic jams"	Small lobby restrooms	
Both plazas hardly utilized	"Dead" plaza feeling	Lighting	No connectivity between UMOCA, Salt Palace, and Abravanel Hall	Pinch points for lobby flow		
Brick is corporate and ubiquitous	Delivery access	Lobby sound	No dedicated parking immediate area – can feel like a long walk	Plaza		

Stakeholder Listening Session – 6/22/23

What is Missing?						
All day public spaces that help create an arts center feel	Clear wayfinding	Cross cultural activity	Interactive spaces	Outdoor seating – informal gatherings	Social spaces	Vestibules for weather
Amphitheater infrastructure for "pit"	Comfortable accessible seating	External branding that is more inviting	More partnerships with convention attendees	Place to bring audience and performer meet and greet – mix and mingle	Sound/lighting on plaza	Ways to extend the event feel – pre and post
Area for smaller performance and education	Community events on plaza	Formal outdoor event space	More social space	Points of interest outside events	Synergy with UMOCA	
Booze and food	Connection with arts organizations on campus	If you want public space access – then public space programming	New visitors and participants	Public tours	Technology	
"Campus feel" with UMOCA and SPCC	Connectivity in and around building	Interactive plaza artwork	Non-performance opportunities	Small outdoor concerts on plaza	Vertical circulation options	

Stakeholder Listening Session – 6/29/23

What Works Well?			
Acoustics and sound quality	Capacity	Flexible so individuals can plan the entire season	POPs participation of symphony for K-12 schools
Advertising	Central to public transit	Great programming	Size and square footage
Ambience	Chihuly piece; art works as a whole	I love that the building hasn't changed much inside	Th F. was a splendid conductor
Architecture "style" and "vibe"	Chihuly piece; when it's not dusty	Iconic design and façade that holds up	The acoustics
Areas to socially interact before	Design of its time	Location	Visual from every seat

Stakeholder Listening Session – 6/29/23

What is Not Working?		
Access to entrance for tickets and/or for performances is confusing	Intimidating	Technology for seniors – some hate QR coding, electronic tickets, etc.
Accessibility	Line of sight to the building – exterior	The steps up feel sideways
Bilingual	Only doing emphasis of black composers during February – tiresome, they are with us all year as well as other groups	Uneven surfaces for those with mobility issues
Doesn't seem open and inviting	Program optics	Wayfinding to the building
Inaccessible to minority community members	Signage	Who the space is for – the perception

Stakeholder listening session – 6/29/23

What is Missing?				
Accessibility is intimidating	Concessions	Messaging about events here to be inclusive	Outdoor activations	The missing middle (aisle)
ADA access – seating is tricky	Dead space indoor and outdoor	New artwork	Perception of narrow demographics served	Too much grass outside – looks untouchable
Bottle necking	Doesn't feel like a public space	Only one elevator	Ramps to seating	Water pressure
Box office can be congested	Lack of outdoor activation	Only one elevator – those in wheel chairs and those with walkers have to wait	Shade	
Comfortable seating	Lack of parking for seniors – transportation	Outdoor access	Speakers in women's restroom – with music education or performances	

USUO Board Listening Session – 6/29/23

- There could be more comfortable, welcoming zones, while also preserving the special quality of the Hall
- To bring AH up to date, create new spaces for different types of interactions, this is missing/lacking and there is a need for "additional gathering spaces"
- How do we make this a destination in our city, and offer a mini destination during the day with organic spaces that welcome people?
- Rehearsals could be more accessible to the public, there could be education programs (music education, history of music, etc.) integrated into the space
- Experiential restrooms with audio thematic with music education or sound
- There should be a better connection between UMOCA and Abravanel Hall
- Concessions: doesn't work at all right now, limited space, a simple fix could be a pre-order for concessions and then pick it up in the lobby
- Spaces should be segregated/more distinct in the lobby, on sell out days there is no room in the lobby. Part of the original vision was that the lobby was designed only for going into the performance, NOW going out is a more social event
- Food and beverage offerings are limited now, more variety could be introduced; lack of alcohol sales is problematic and limiting
- MaCaw Hall, concert hall in Seattle, has a coffee bar that is very popular...
- This is open a couple days a week a coffee bar for refreshments, etc.
- Ticketing: this is hard to find, app will be more broadly used in the future, we can avoid bottlenecks if we could consider swiping for entry to ensure everyone in the building has a ticket.
- Audiences still need a face-to-face presence to handle questions, last minute needs. Still a lot of complications with app, still many walk-ins, some groups buy tickets last minute
- Best location for customer service point of contact would be a location visible from outside! Current location is remote. Curved ticket booth is not working, ticketing should be on MAIN level, it is not currently intuitive, feels like the service entrance.
- Create a concierge space that can expand and contract for different events.
- Access from the outside is not necessary for ticketing, ideally this should be welcoming people into the Lobby + visible from outside. Ticket offices outside are an older model. Access control is important and there is a balance of welcoming people in and access control and security of the venue. There could be scanning before entering the sound and light lock.
- Maintain two entry points, keep the Trax oriented access and the street/plaza entrance.
- Consider a pre-function space: examples in NY are on the street
- Do not change the exterior of the building. It has a very clear strong design...
- The acoustics are great – the walls and basic shape should be maintained
- We don't want to lose the beauty of the Hall and an elevated experience should be preserved. We don't want to lose the special beautiful quality of Abravanel, keep it special...! So much has become vanilla, this is a special occasion venue. It's an iconic building, it's about grandeur.
- The approach from the plaza is impressive, there is curb appeal, the foreground is important

USUO Board Listening Session – 6/29/23

- Digital signage can be more welcoming
- PLAZA: people are moved diagonally
- Don't overbuild this, preserve also the view from inside looking out
- Look at ways to preserve views, smaller interventions
- Another UMOCA connection: connect to the plaza, smaller sculptures, nothing of a monumental scale.
- Green space, shade, sculpture garden
- Maintain the presence of the building with plaza improvements
- Tie it all together – create an arts + culture center
- Make it easier to connect to the context
- Connect to the hotel guests, Hyatt and Marriot visitors
- Create a destination, an experience out of the ordinary
- The full experience is dinner – it is too far to walk now
- How do we change the flow so you park once you come to the Hall – you eat, you connect socially, experience something, learn something, etc.
- Downtown has changed and now it is a destination
- Connect to UMOCA for usable for elevated concession, education, rental space, party space that is connected. Get people used to this – people can have an evening…private gatherings, etc.
- Don't compromise
- Rooftop of UMOCA is an opportunity
- If we have a 7:30 or 8pm start time, the musicians eat AFTER the show, there are only 2 restaurants opened late. The Delta Center will likely have more of an entertainment district.
- Create connections with other areas, Delta Center and other developments to the west
- We should be ahead of what happens with the nearby developments
- NEIGHBORS
- Director of Sales + Marketing and General Manager from the HYATT REGENCY
- Guests learn about Abravanel Hall from their concierge team,
- In the future: Incentive groups a night without meetings, a place to explore the communit,
- Long Beach convention center and arts + entertainment center, community interface, as a model example
- Unique general sessions could be held in Abravanel Hall, outside the convention center like a TedTalk, etc.
- Members want unique experiences
- How it connects to Salt Palace is key, there are 700 rooms in the hotel
- Create a destination first: look at the city first
- We are walkable here so bring people down the street, creative touches, a musician on the street leading people to the hall, etc.

USUO Board Listening Session – 6/29/23

- It is developing a partnership, their calendars are further out than symphony: 2-4 years booking out
- They are only open 8 mos, looking for partnerships in the neighborhood
- Symphony has approx. 140 performances each year;
- There are approximately 20-30 other groups
- A&C opens the calendar about 18 months in advance
- Connectivity would be ideal to align with the Salt Palace
- Make it easier to get from the Salt Palace to Abravanel Hall
- Parts of the symphony to connect, rooftop venues with music
- 300 W and 100 S southeast of the Delta Center
- Steakhouse STK is coming – an international steakhouse with "vibe dining"
- Rooftop bars and restaurants
- From a patron experience, dining options that are late night
- Lobby bar with light bites
- Families may also want a desert option late night
- State will move back in Rio Grande depot, there is a challenge with populations experiencing homelessness
- A&C no longer places seating in the plaza
- The idea of outdoor spaces that are more activated
- Programming with buskers, sculpture, etc.
- Holiday market (challenging because of the activity downtown in December)
- September artist market
- Seasonal opening events
- Outdoor retailer
- Rental spaces?
- This area is known for MLM (Doterra is 20-30,000 people)
- Pop-up events in the Plaza, Hall
- A TOWN CENTER concept, for example
- Long Beach: look at their holiday and event spaces…That could be different from Gallivan offerings
- More permanent kiosks like ice cream, like Bryant Park with food and beverage options, that can expand and contract, i.e. a coffee kiosk, hot dog vendor
- The Latinx community brought a hot dog kiosk as pop up
- Montreal showed historic photos with a kiosk and QR code with audio, the alleyways included with streets a Projection Mapping on the street with video projections, Pre-covid (2018)

USUO Board Listening Session – 6/29/23

- Multi-sensory
- Digital signage shows what is happening within the venue and also other events, this can bring people in
- Accessibility of lobby, access to Chihuly sculpture. Open lobby to the public
- Larger digital signage
- Meetings like this is important, how to partner
- Engage the concierge better, provide tours of the venue for the concierge
- Sports, arts and entertainment district that would allow for alcohol, digital signage, security and infrastructure. Other cities do this better.
- This is the urban gathering center hub for the entire state. In-state residents and vistors
- 2019 to 2023 SLC is 134% more active that pre-pandemic phase, the City came back sooner than other cities in the country. More growth is coming

Additional A&C Staff Comments – 7/6/23

Back of House

- Back stage
  - Larger, dedicated storage rooms for USUO instruments and Arts & Culture equipment
  - Off-stage dressing room/rooms for quick changes for Wasatch Speakers & US guests, etc.
  - Production offices
  - Add elevator stop to go to the basement. It will make it less dangerous for County staff to replace large pieces of equipment
- Loading dock
  - Remove the large metal ramp that is blocking the elevator room and move it to the other side and install stairs where the ramp is currently placed
  - Add a motorized lift at the dock that can be used to transport road cases from a van/trailer up to the dock level
  - Isolate stage lift pump pipes from performance structure
- Artist areas
  - Restrooms – dressing rooms
    - Update flooring, finishes, and lighting. Current layout is insufficient, outdated and uninviting
    - More stalls and lockers in women's restroom
- Green Room/lounge
  - Move instrument storage lockers and musician mailboxes out of the Artists' Lounge and to a dedicated USUO location
  - Build up a level over the lounge and offices. Put USUO staff up one level (with a conference room) and use their old space to expand the USUO musician specific spaces as they requested including more restrooms

    Use the current lounge space to expand for conductor and guest artist rooms. Above the lounge could be a choral room and more restrooms. And add windows!
  - Artist spaces–more dressing rooms with full bathrooms and space for a couch or piano
- Safety, Security
  - Add a fire horn and strobe light to the A&C TD office. Currently, if our door is closed, we cannot hear the fire alarm if it were to activate
  - Change the security entrance to the next floor up and build an enclosed walkway from the north by the lobby doors to that space

    Most artists are looking to utilize the lounge, not the loading dock. Might create an opportunity for parking under it that is out of the Salt Palace egress
- Stage and Auditorium
  - Sand and seal the House floor
  - Re-skin the sound lock walls in something more attractive and sound absorbent
  - Re-skin the house and sound lock doors to the new color of laminate
  - Reupholster and re-foam auditorium seats
  - Rebuild chandeliers and their winches. Winches have not been maintained in years (only inspected) and oil has leaked out of 2
  - Install a new stage floor, it cannot live through another sanding
  - Lightly refinish stage walls. It is a laminate over particle board
  - If we are going for large changes, let's continue the work on the sound isolation gap that Dr Cyril Harris did on two sides for the performance area

Additional A&C Staff Comments – 7/6/23

Technology

- Lighting
  - Add a 3rd FOH electric to allow for front lighting when the stage extension is in place. Currently, when the stage extension is in place, the only lighting options are from the box booms, which only provide side light at that angle. A 3rd electric at FOH would prevent clients from having to bring in and set up additional lighting in the tiers, which would also prevent seat kills
  - Convert all lighting instruments to LED engines
  - Upgrade snapshot panels to ETC Paradigm system to allow for better recording of presets and ability to change LED fixture colors
  - Whatever is chosen needs to be quiet and not cast color shadows onto music sheets
- Internet
  - Add a network port on the wall behind the FOH mix position. Currently we run a Cat-5 cable from the stage and under the plenum
  - Improve internet access in the ticket office
- Audio
  - Update audio rack and modernize technology
  - Proper tie-in from USUO stage manager to audio system

Front of House

- Lobby
  - Improve lobby configuration – concessions, merchandise, Patron Services
  - Consolidate lobby lighting switches into one location. Current system is cumbersome with the lobby and Chihuly light controls in three locations in the lobby and on the 3rd tier
  - Improved drinking fountains with bottle refilling stations
  - Consider ways to "bird-proof" the lobby windows. Along with the windows letting in heat, those large reflective surfaces disorient birds in flight, who end up becoming casualties from bird strikes. As we consider future renovations, we should consider ways to detail our windows with the dual purpose of reducing heat and reducing bird mortality rates
- Restrooms
  - Update flooring, walls, counters, and stalls
  - Install better lighting. Current layout is very dark and uninviting
- Ticket Office
  - Install additional power and emergency power.
  - Improved access to the network – internet, phones, etc.
- First Tier Room
  - Upgrade the room's technology
  - Build up and tie the seating area access into the lobby bridges
  - Create an exterior entrance, which could help with alcohol service in the Hall
  - Consider using room as a chamber/jazz/blues-sized performance space that can also accommodate receptions, like the Appel Room at Lincoln Center

Additional A&C Staff Comments – 7/6/23

Accessibility

- Address ADA seating and install proper slopes!
- Split the Tier egress and the main floor egress out to the east at the lounge level and build a covered walkway back to the plaza. This would eliminate non-compliant slopes and stairs for more people
- Add a covered exterior ADA ramp from fire exit on main floor house left to plaza level

Plaza and Site Activation

- Install building façade lighting that can be programmed based on the season and/or event (similar idea to the Capitol gargoyles and soffits)
- Strongly encourage us to consider building an event space/lobby extension where the main plaza and north plaza are. The main plaza structure is a great opportunity to tie in UMOCA. We could move the Chihuly into the new space to help with movement in the lobby
- Create non-public atrium lounge between Abravanel and UMOCA. This would be a great opportunity to create a bond for the artist and staffs of both buildings. This could only be done if the Salt Palace does not use the walkway in its egress calculations

AH Neighbors Listening Session – 8/1/23

STRENGTHS

- Likes the trees, likes the open space
- Abravanel Hall is "a gem of a resource" for the neighborhood and City
- The residents notice some (but not all) of the events held outside
  - There is limited participation in the outdoor events, but many do attend indoor concerts and events
- Noise has not been an issue
- The residents do not have complaints relating to the Hall (per Building Manager)
- They like the life downtown, there "is a lot cooking downtown", it is vibrant, positive to have activity downtown
- Glass wall with the Chihuly is "very powerful"
- More art would complement the city
- Bagpipes tune-up on the plaza – very nice sound on Days of 47 parade day
- Music as theme would be a positive addition to Plaza
- Sometimes there are people pre-/post- concert experiences which is really nice

CHALLENGES

- Biggest impact is when streets are closed
- They do not see a lot of people in the green space
- Let them know they can sit there, provide benches, etc.
- Beverages would be nice – "free Pepsi"
- Outdoor refreshments are missing
- Supports more use, but would like to see the footprint of the green space remain the same
- Larger trees, more shade
- Water feature would be nice
- More benches, gazebo, benches, small performances, small-town feel

CONCERNS

- Blocking views, large structures are very concerning
- Taking away green space
- There was a drone show during an outdoor retailer event that was up at resident's level (FYI)
- Legroom is not great in Abravanel Hall for tall patrons
- They like the experience overall inside the venue
- Walking up the ramp gets crowed
- Women's restroom gets backed up

AH Neighbors Listening Session – 8/1/23

OTHER COMMENTS / INFORMATION

- Open to the idea of a screen outside or inside (ex. 111 Tower), the hours of operation would be of importance to this community
- Open to the idea of wrapping of the exterior, changing the exterior as long as it is not significantly larger in scale
- Promontory Tower has 165 units / 50% are full-time occupants. Originally 185 units but some have been combined
- If there were discounted tickets for symphony for season tickets, there would be a lot of interest in this from owners in the building
  - They would put this information into their newsletter if the County provides this information
  - UMOCA would also benefit from this
  - They did not know where UMOCA was…!
- HOAs – there are 3 HOAs in the area that the County could connect with; Regent and 2 Promontory properties – plus apartments in the area
- Likes the graphics used by the Symphony, the smaller banners are tasteful
- It is a classy part of town, uncluttered with commercialism; "It's ok to be quiet, refined and polished"

OPPORTUNITY

- The Promontory Tower and other residents would be interested in renting the spaces in the Hall

Appendix C: Digital Survey Results

Abravanel Hall Virtual Workshop

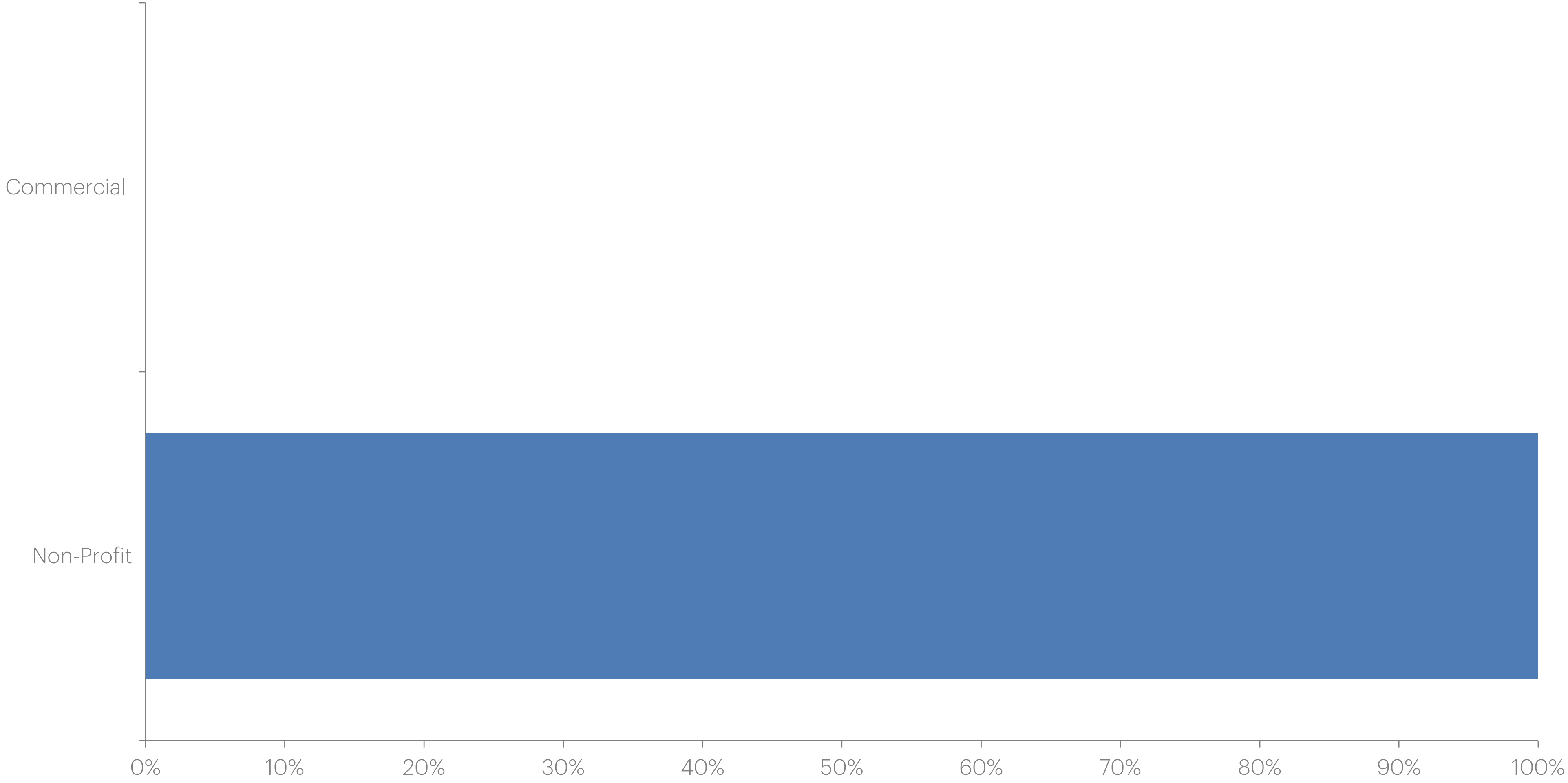
- Date Created: Thursday, June 08, 2023
- Complete Responses: 3

Q1: Contact information

Name	Organization	Email Address
	Draper Philharmonic + Choral Society	
	Draper Philharmonic + Choral Society	
	UMEA	

Q2: Is your organization a commercial or nonprofit organization?

- Answered: 3 Skipped: 0



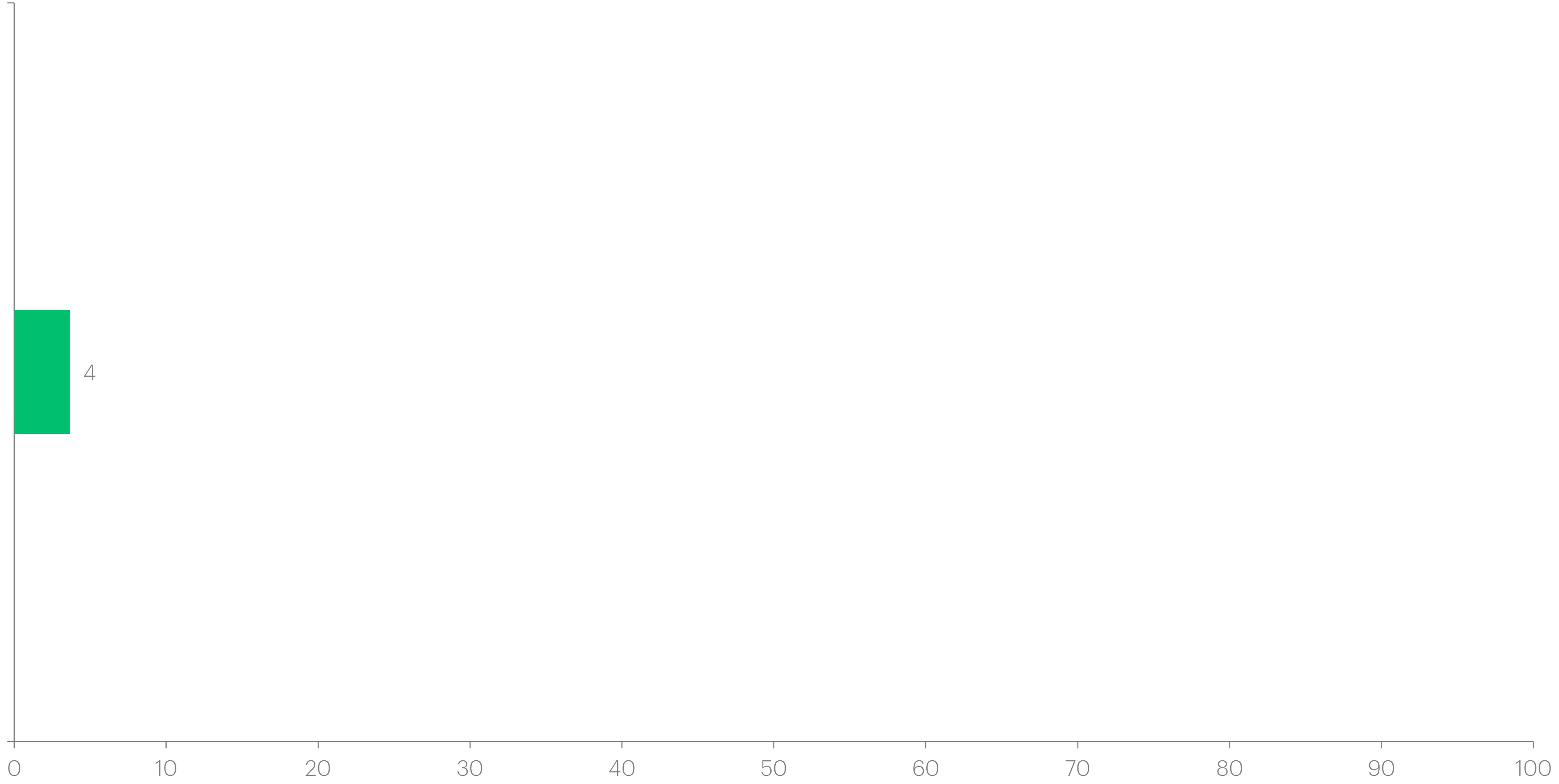
Q2: Is your organization a commercial or nonprofit organization?

- Answered: 3   Skipped: 0

ANSWER CHOICES	RESPONSES	
Commercial	0%	0
Non-profit	100%	3
TOTAL		3

Q3: In a typical year, how many days do you use Abravanel Hall?

- Answered: 3 Skipped: 0



Q3: In a typical year, how many days do you use Abravanel Hall?

- Answered: 3 Skipped: 0

ANSWER CHOICES	AVERAGE NUMBER	TOTAL NUMBER	RESPONSES
	4	11	3

Q4: Strength: What works best at Abravanel Hall for your artists, crew, and patrons?

- Answered: 3 Skipped: 0

- 1. House crew is amazing to work with
  2. Easy load-in space
  3. Plenty of changing rooms and large gathering space
  4. Audio PA is excellent
- Stage size, backstage lounge area for our large group to gather, dressing rooms, size of seating capacity, grandness of venue, beautiful lobby, helpful staff
- The crew and staff are top notch. Always going above and beyond

Q5: Weakness: What doesn’t work well in the Hall for your artists, crew, and patrons?

- Answered: 3   Skipped: 0

- 1. Very limited parking for key people
  2. Very outdated lighting system and options (No Movers and Outdated Console)
  3. Small audio console for large format shows
  4. Audio/Network and Electrical has issues from time to time
  5. Seats need to be broken up with more a aisles - hard for a person in the middle to get up and out if something urgent comes up
  6. Many parts in the house and backstage are worn and need updating
- Parking for production staff. No places to park near the venue to load large amounts of equipment, set pieces, costumes, food deliveries, etc. Staff has sometimes been very unpleasant at times about this situation when we felt we didn't have a choice to get what we needed loaded into the building. Lighting - our productions are full theatrical productions and need special lighting affects, we have to rent additional lights and bring with us – which is a large hit to our budget as a non-profit. The extended stage is a huge bonus for our company – but it's not always available and the cost involved to have it added to the stage is also a huge hit to our limited budget. Reserving dates is also a hit and miss – we'd love to perform more at AH, but the dates don't always align with our production needs. We truly love performing at AH, it's just far for our core audience to travel and our surveys have indicated that parking is a real concern for our patrons
- Respectfully: Hard to reach staff and get a reply when a rental is needed

Q6: Opportunity: What things are missing that we should consider?

- Answered: 2   Skipped: 1

- 1. Update Tech Package offered by Venue (Especially Lighting). We have to rent most things
  2. Update overall interior finishes. Very outdated
  3. Add zero-delay video system for Soloists to conductor behind them
- Nothing

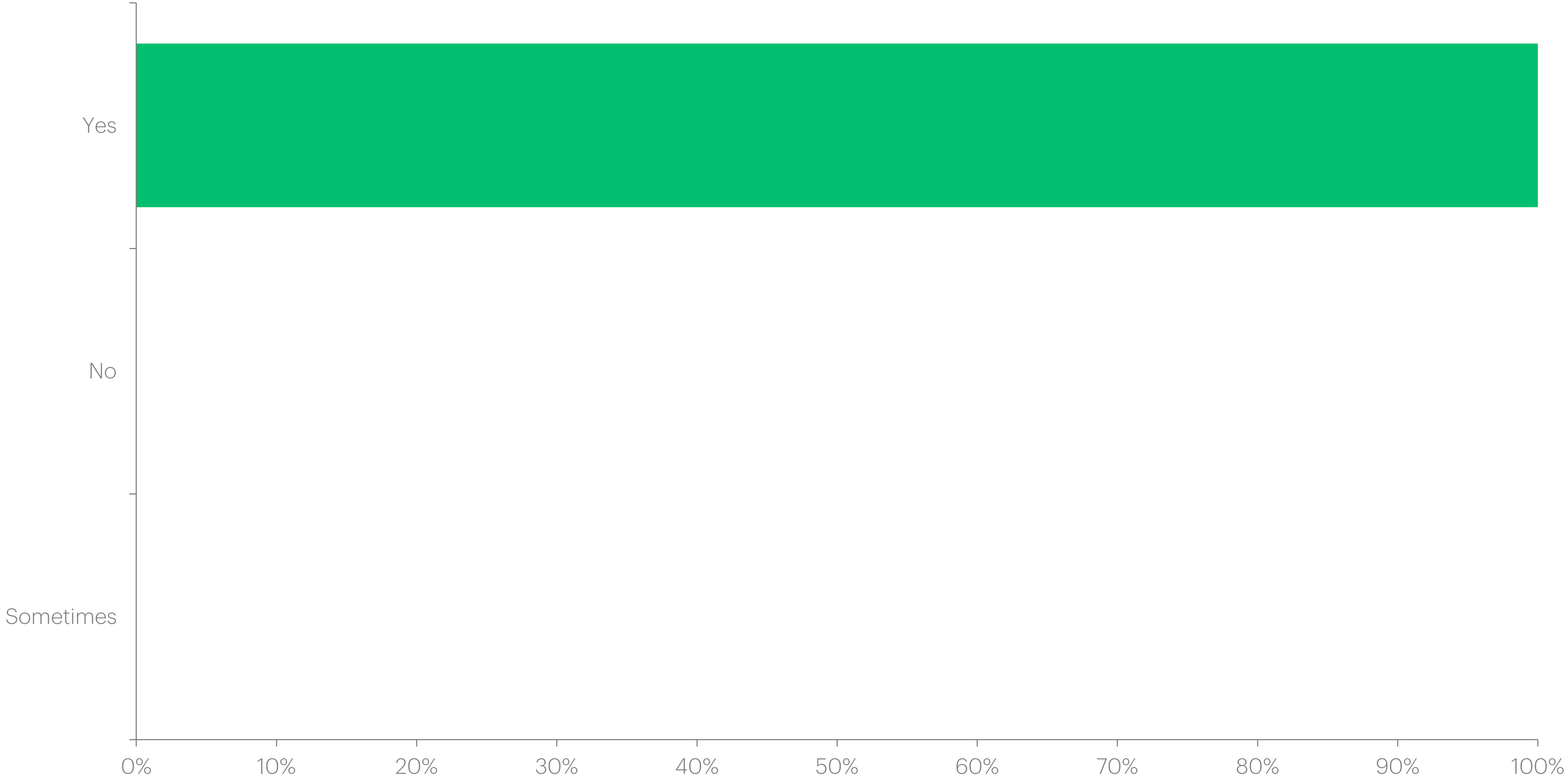
Q7: Threat: What changes could impact your long-term use of the Hall?

- Answered: 2 Skipped: 1

- Backstage Parking for production crew, availability (hard to change that, I know), and more stateof-the-art lighting options
- Rental Fees Increasing

Q8: Do you use audio amplification?

- Answered: 3 Skipped: 0



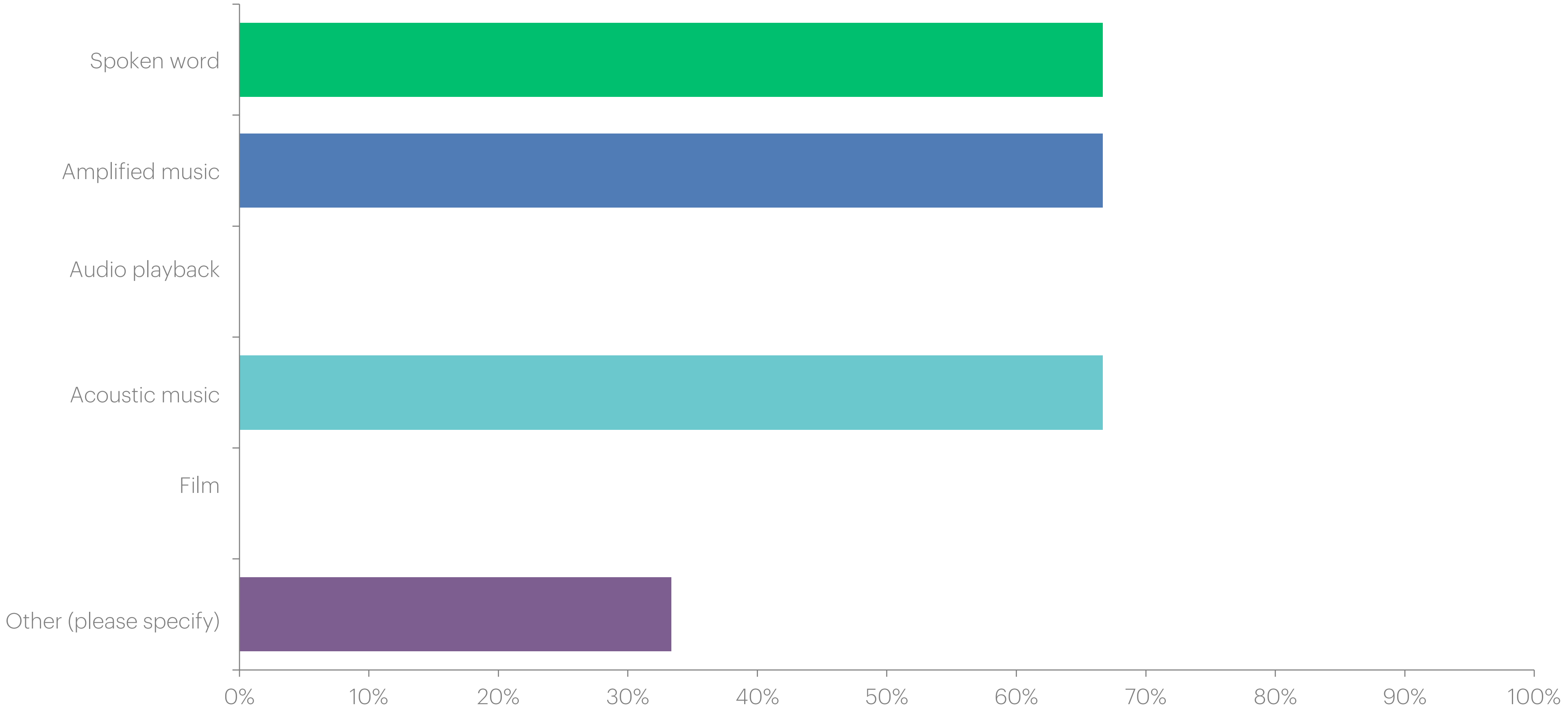
Q8: Do you use audio amplification?

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	100%	3
No	0%	0
Sometimes	0%	0
TOTAL		3

Q9: What type of events do hold at Abravanel Hall? (select all that apply)

- Answered: 3   Skipped: 0



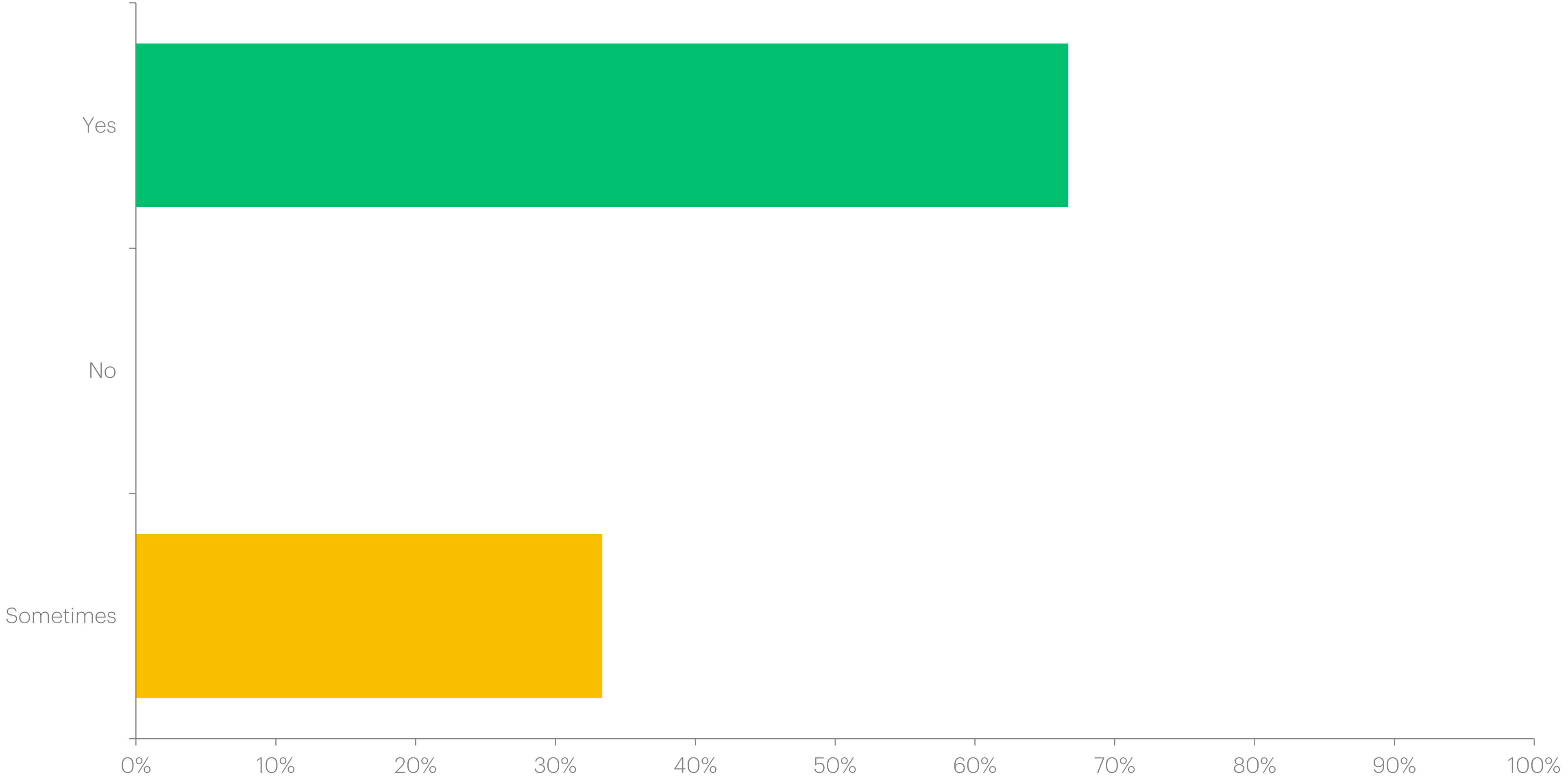
Q9: What type of events do hold at Abravanel Hall? (select all that apply)

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Spoken word	66.67%	2
Amplified music	66.67%	2
Audio playback	0%	0
Acoustic music	66.67%	2
Film	0%	0
Other (please specify)	33.33%	1
TOTAL		7

Q10: Do you record or broadcast your events?

- Answered: 3   Skipped: 0



Q10: Do you record or broadcast your events?

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	66.67%	2
No	0%	0
Sometimes	33.33%	1
TOTAL		3

Q11: What, if any, additional audio equipment to bring in for your events?

- Answered: 3 Skipped: 0

- 1. Large-Format Audio Consoles (i.e. dlive 7000, Yamaha Rivage or CL5)
  2. Digital I/O at stage that supports 96Khz
- We bring in our own person to record
- We bring our own microphones, sound boards, and equipment to run these items

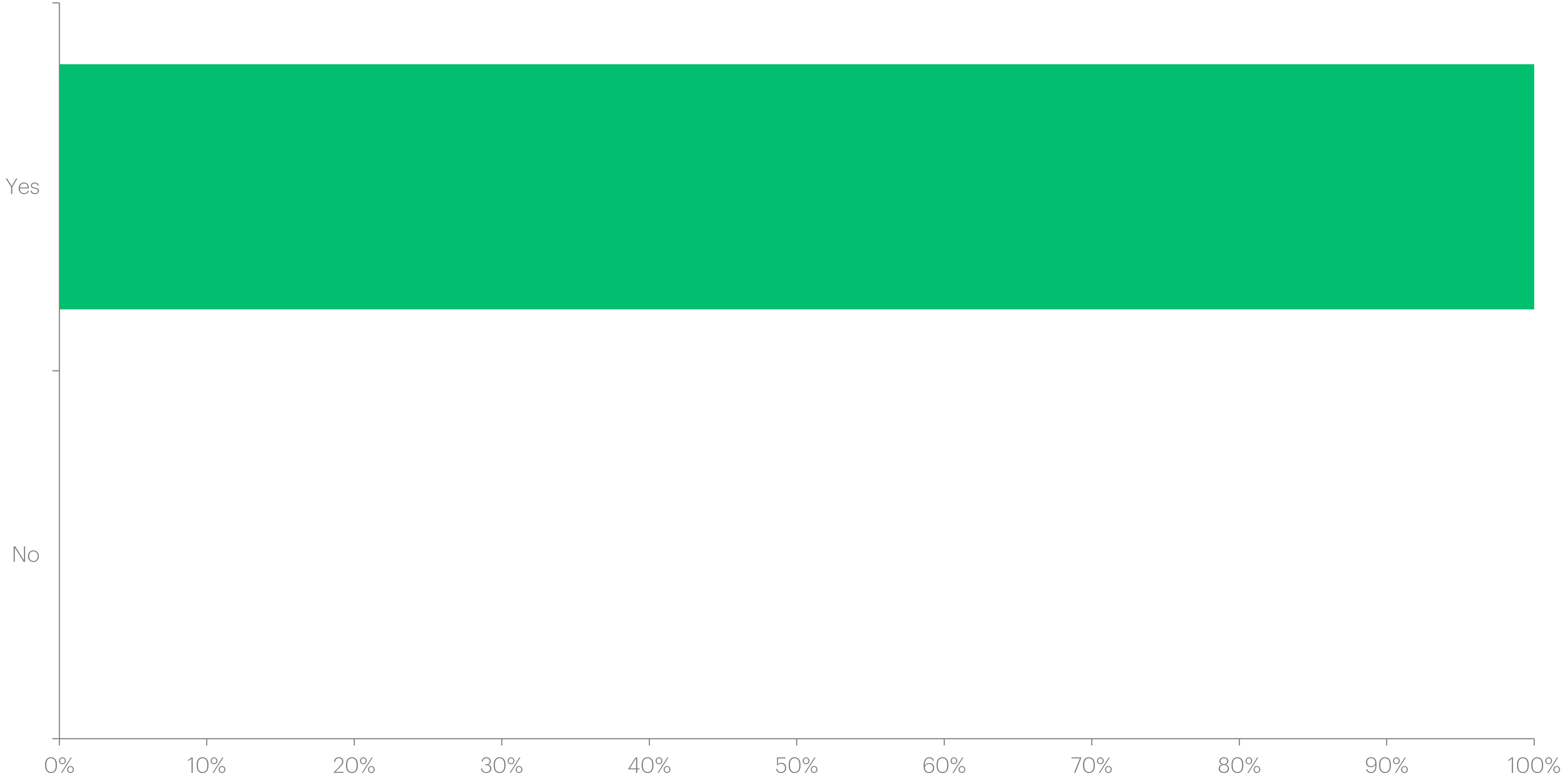
Q12: What audio equipment is missing from the Abravanel Hall inventory?

- Answered: 3   Skipped: 0

- 1. Large Format Audio Consoles (i.e. dlive 7000, Yamaha Rivage or CL5)
  2. Digital I/O at stage that supports 96Khz
  3. Support for various protocols, i.e. Dante
  4. Better audio monitors backstage (Loading Area)
- I think we had what we needed
- Our Technical director would know this - I cannot comment on this

Q13: Are you happy with the audio quality in the Hall?

- Answered: 3   Skipped: 0



Q13: Are you happy with the audio quality in the Hall?

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	100%	3
No	0%	0
TOTAL		3

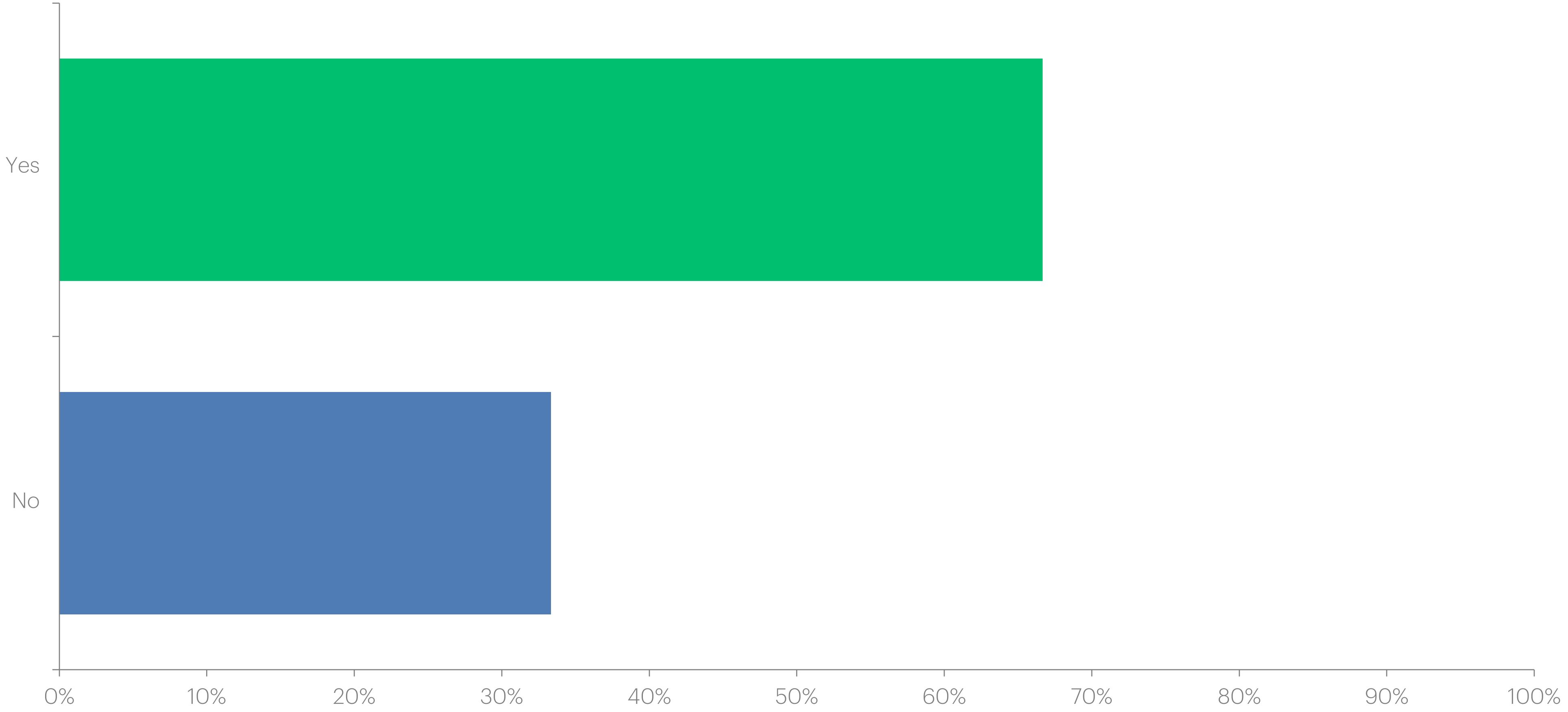
Q14: Is there anything you wish was different about the audio quality?

- Answered: 1   Skipped: 2

- 1. Support for applications where a center cluster for PA would be better
  2. Better low-end support, Subs, would help as well
  3. Nice to have: Surround Sound support for SFX and Video applications

Q15: Do you use any lighting in addition to the white orchestra light above the stage?

- Answered: 3 Skipped: 0



Q15: Do you use any lighting in addition to the white orchestra light above the stage?

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	66.67%	2
No	33.33%	1
TOTAL		3

Q16: What lighting equipment do you bring in for your events?

- Answered: 2 Skipped: 1

- 1. We typically will being in 8-16 Mac Aurora's (Movers) for color washes
  2. 2 - 4 Viper Spots (Movers)
  3. GrandMA console
  4. DMX Splitters

  The stage is very white with no ability to add any color with our outside equipment
- I would have to defer to our Technical Director

Q17: What lighting equipment is missing from the Abravanel Hall inventory?

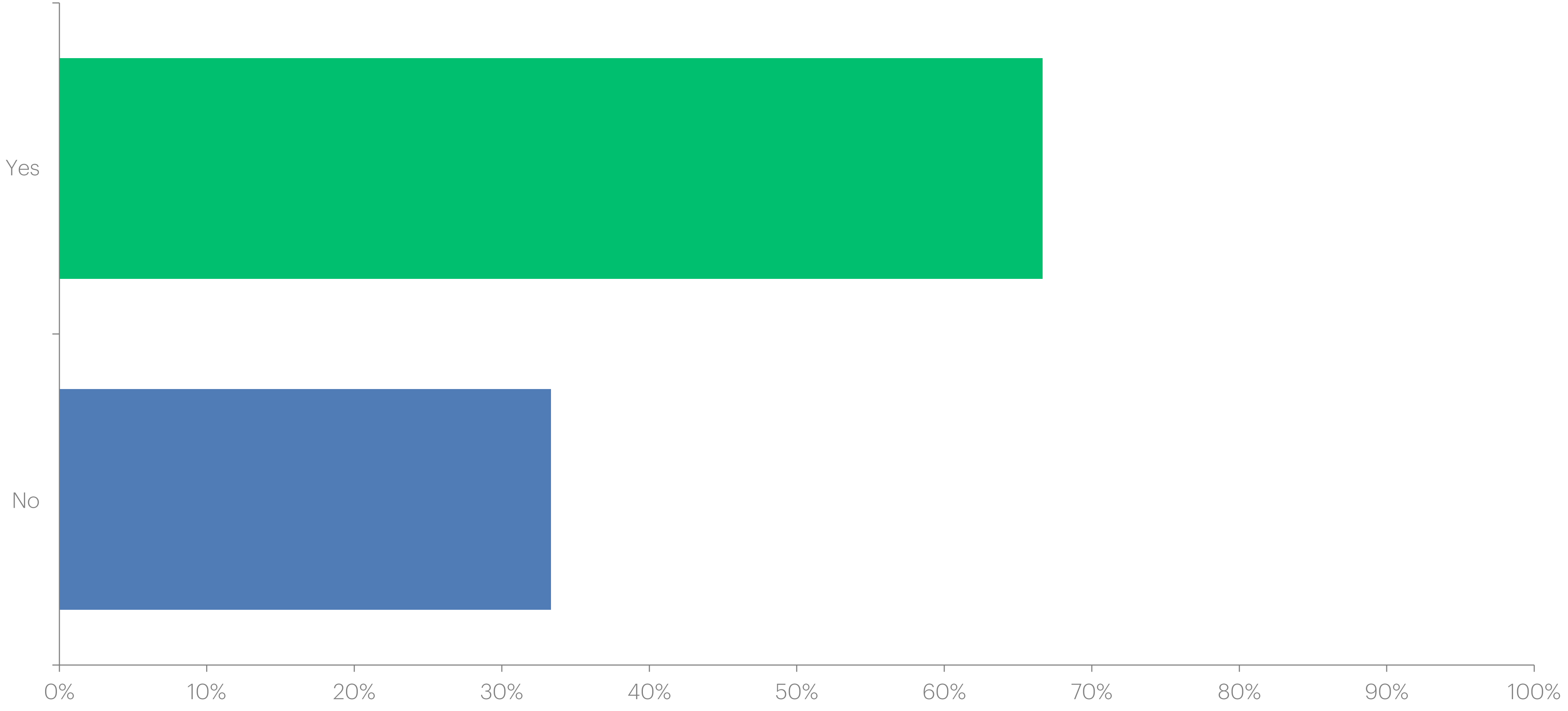
- Answered: 2   Skipped: 1

- 1. Movers, Movers and Movers
  2. Need an updated lighting Console – ETC APEX or GrandMa
  3. Hazers + Low Laying Fog with proper ventilation
  4. All static lighting needs to be reviewed and switched out. It's really outdated

  Need a collection of Color Washes, Moving Spots and Beam lighting. Also need more DMX in/out jacks throughout the venue hall and ceiling
- I would have to defer to our Technical Director

Q18: Do you use video or projection equipment for events at Abravanel Hall?

- Answered: 3   Skipped: 0



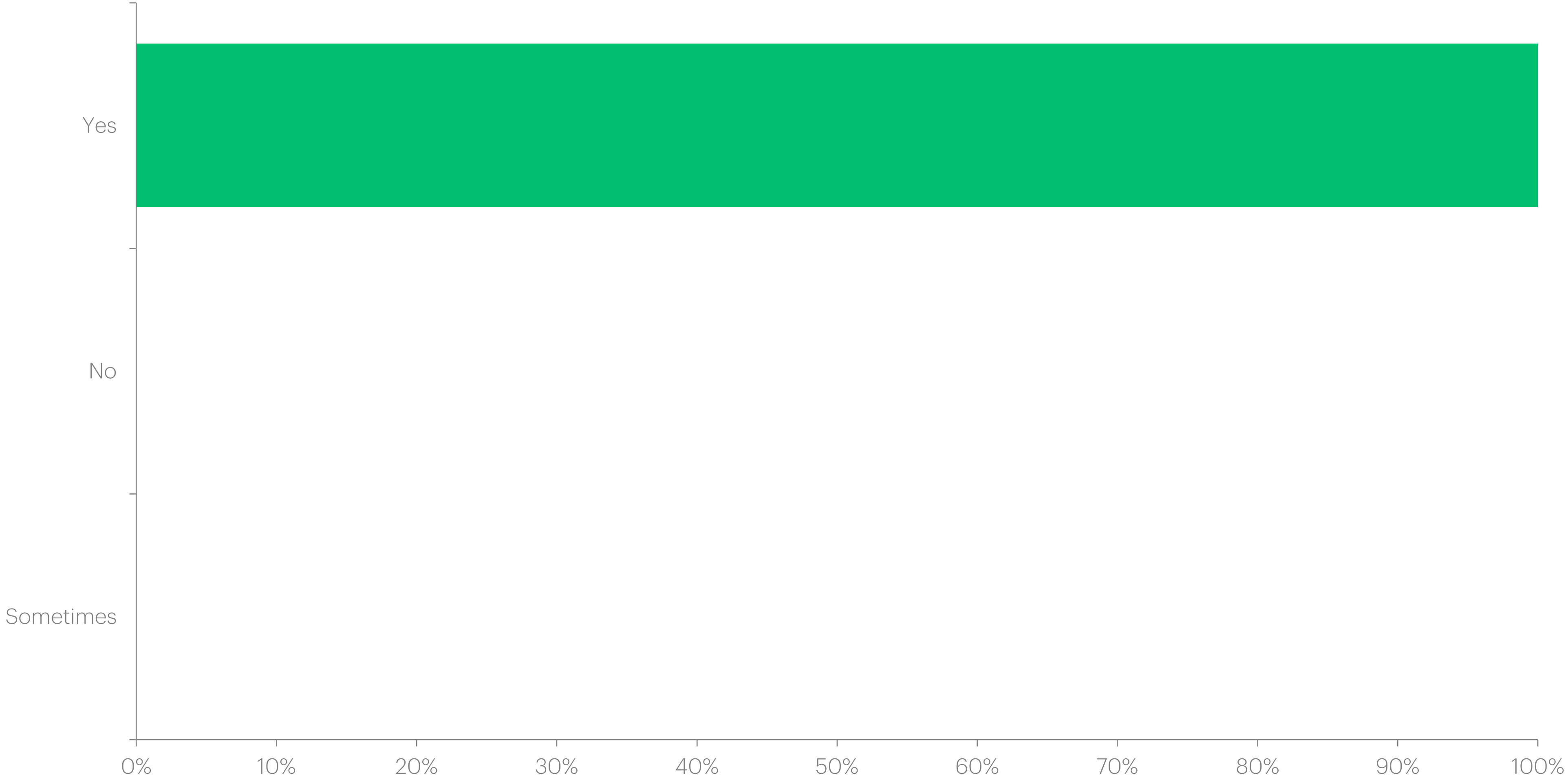
Q18: Do you use video or projection equipment for events at Abravanel Hall?

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	66.67%	2
No	33.33%	1
TOTAL		3

Q19: Do you use I-MAG technology?

- Answered: 1 Skipped: 2



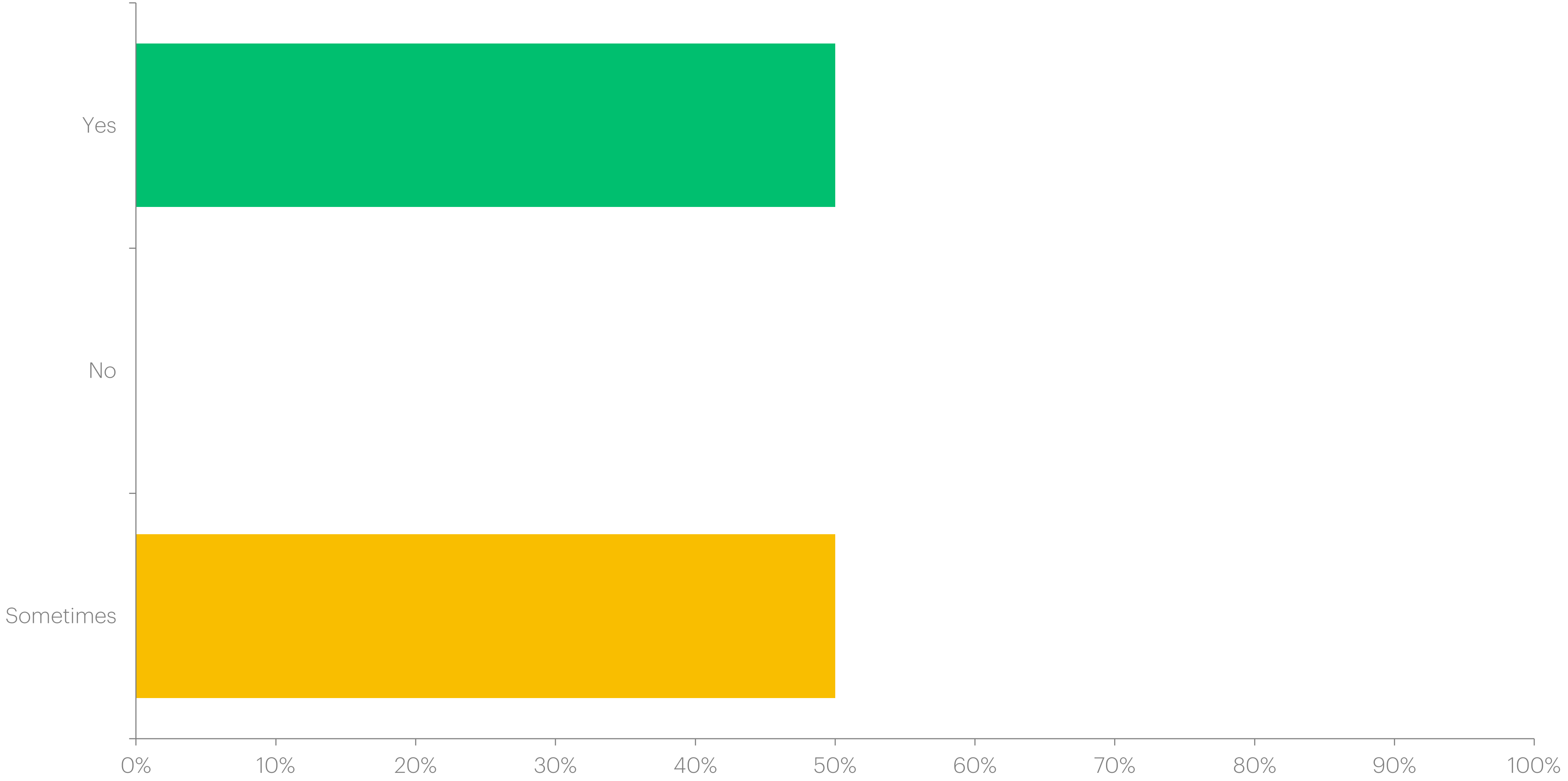
Q19: Do you use I-MAG technology?

- Answered: 1 Skipped: 2

ANSWER CHOICES	RESPONSES	
Yes	100%	1
No	0%	0
Sometimes	0%	0
TOTAL		1

Q20: Do you record and/or broadcast your events?

- Answered: 2   Skipped: 1



Q20: Do you record and/or broadcast your events?

- Answered: 2 Skipped: 1

ANSWER CHOICES	RESPONSES	
Yes	50.0%	1
No	0%	0
Sometimes	50.0%	1
TOTAL		2

Q21: What, if any, video or projection equipment do you bring in for your events?

- Answered: 2   Skipped: 1

- We bring in all projectors and video playback
- We project images to the large drop down screen

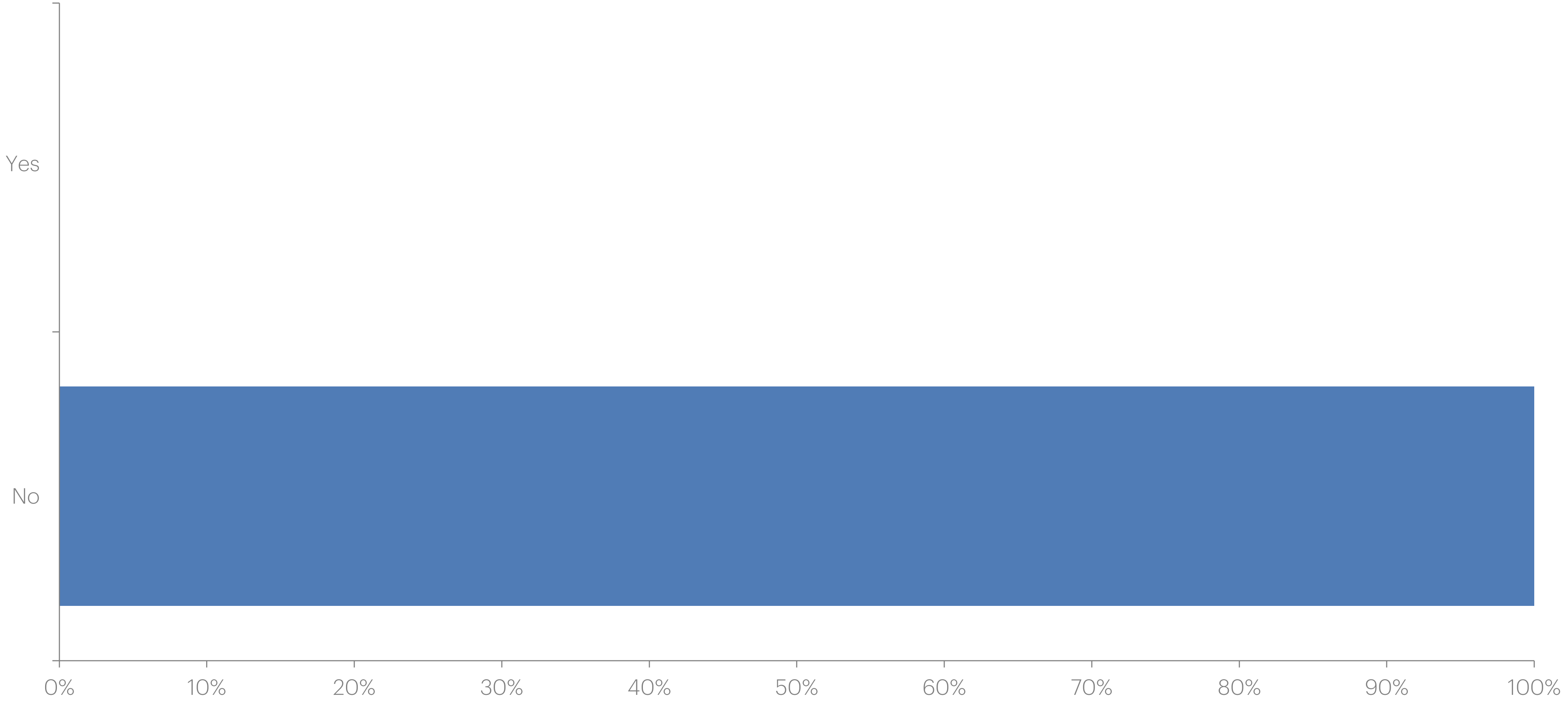
Q22: What video or projection equipment is missing from the Abravanel Hall inventory?

- Answered: 2   Skipped: 1

- 1. I am not aware that AH has video projectors and needs them if not. They should be bright and crisp from the back of the wall
  2. Projection screen, upstage, needs to be larger and fill the back wall if possible
  3. Video splitters and matrix options would be nice
  4. Video Mapping software would be nice as well but low on the list as we can use our own
  5. Clearer and Larger Display Monitors Backstage
- We bring our own projector to use from the side balcony

Q23: Do you download or upload large amounts of data for your events?

- Answered: 3 Skipped: 0



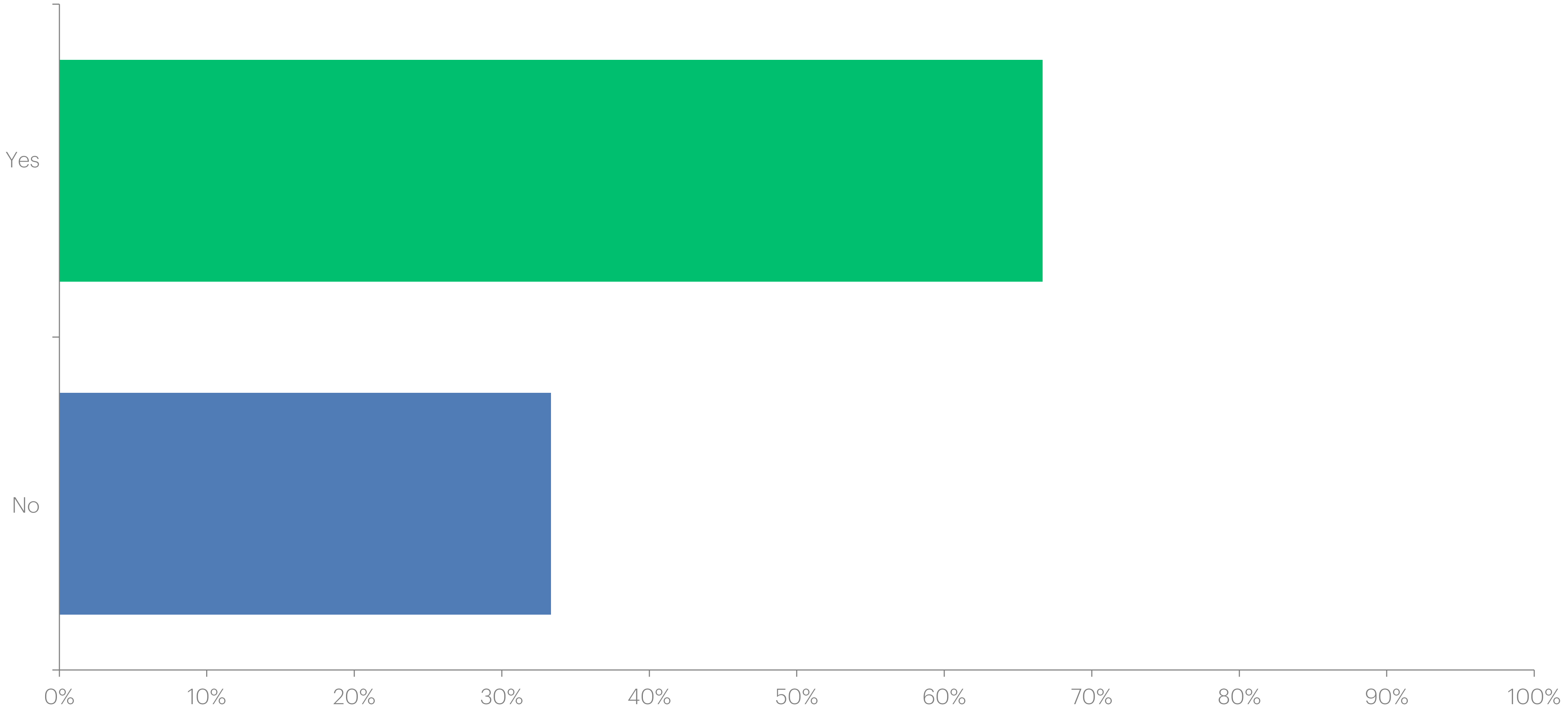
Q23: Do you download or upload large amounts of data for your events?

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	0%	0
No	100%	3
TOTAL		3

Q24: Do you rely on the internet for patron interaction during your events?

- Answered: 3 Skipped: 0



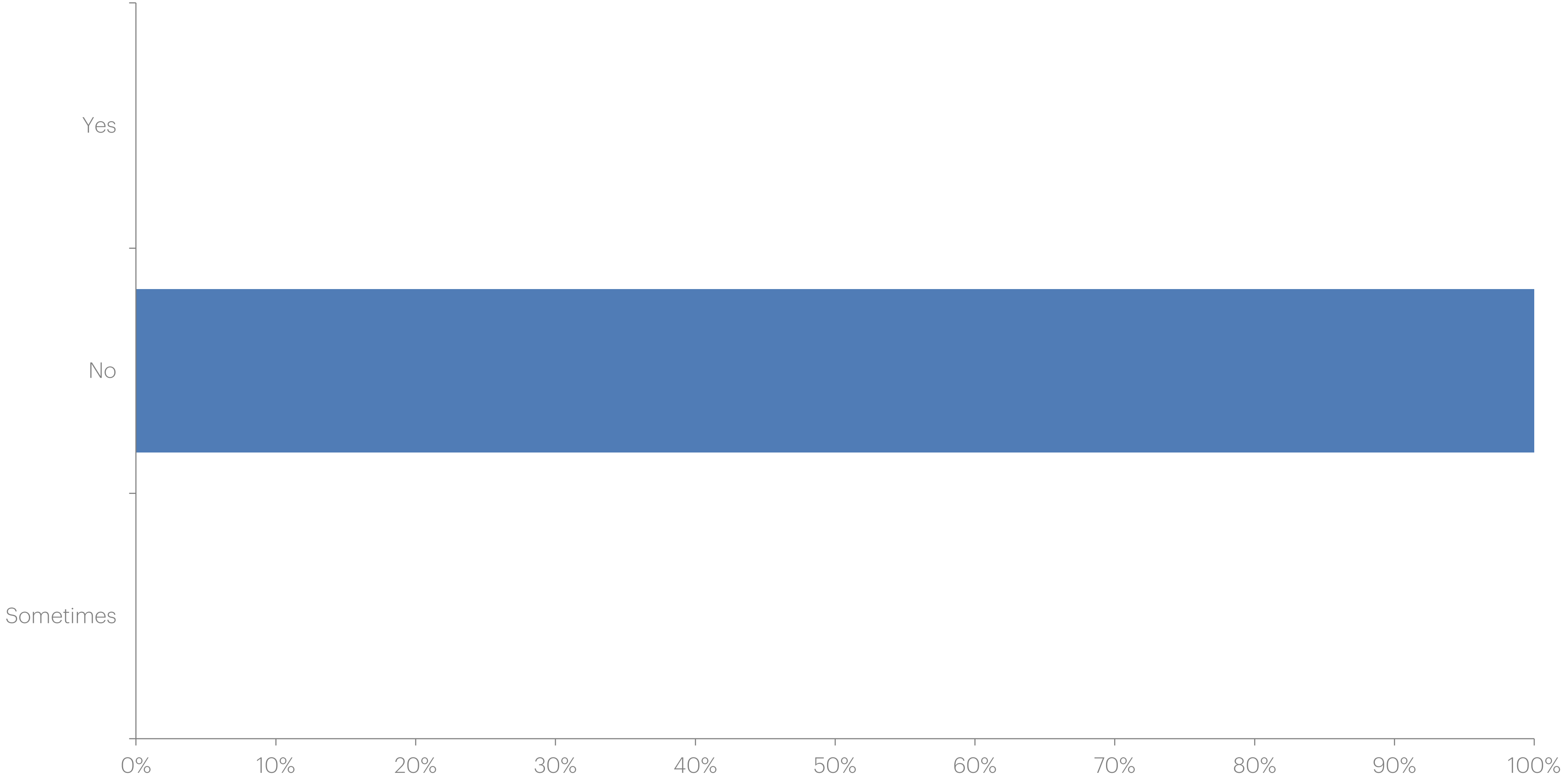
Q24: Do you rely on the internet for patron interaction during your events?

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	66.67%	2
No	33.33%	1
TOTAL		3

Q25: Do you livestream your events?

- Answered: 3 Skipped: 0



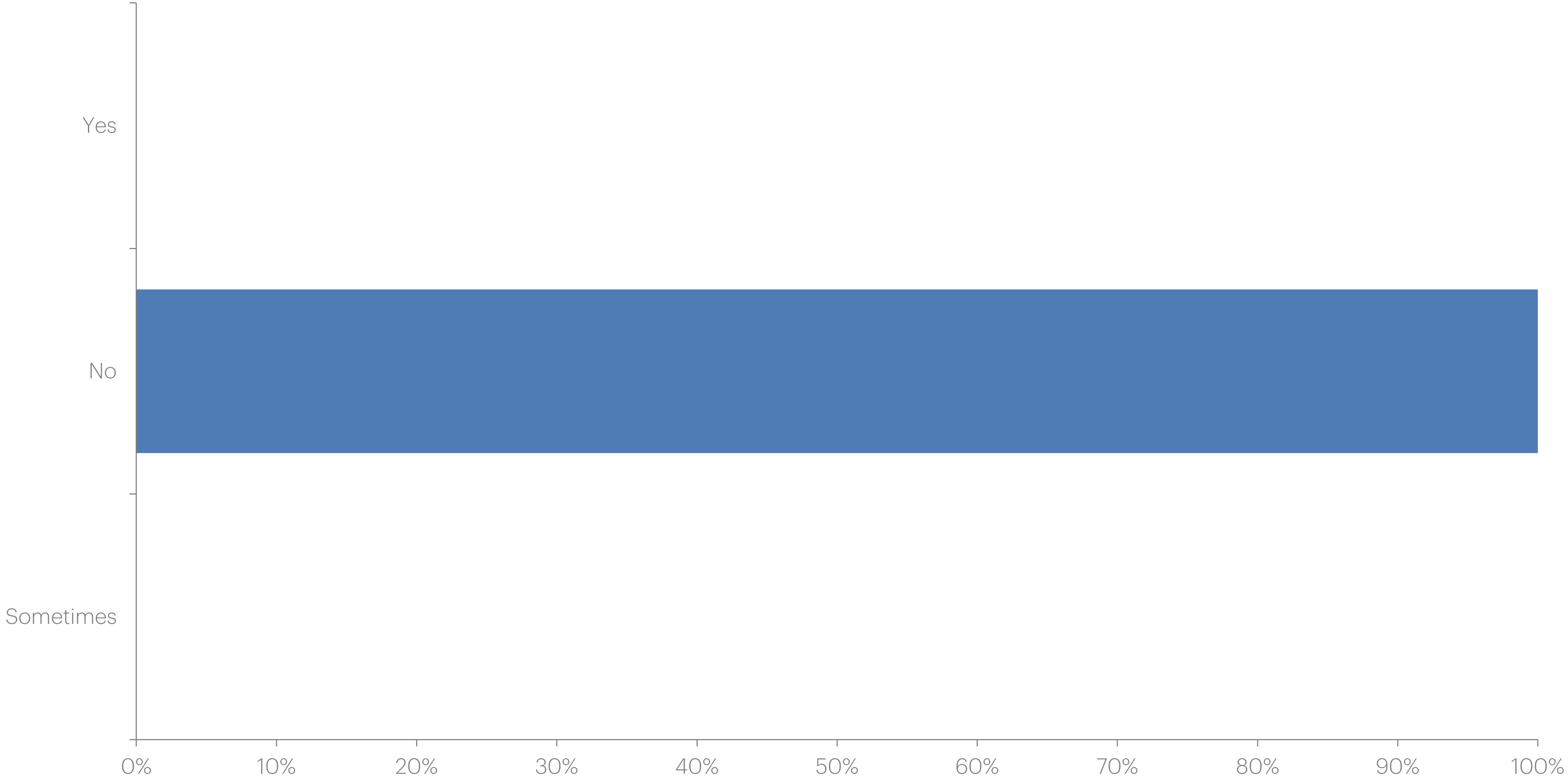
Q25: Do you livestream your events?

- Answered: 3   Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	0%	0
No	100%	3
Sometimes	0%	0
TOTAL		3

Q26: Do you podcast your events in real time?

- Answered: 3   Skipped: 0



Q26: Do you podcast your events in real time?

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	0%	0
No	100%	3
Sometimes	0%	0
TOTAL		3

Q27: What else do we need to know about online access or speed in the Hall?

- Answered: 2   Skipped: 1

- Guest AV Network (Wired + Wireless on same subnet) to connect equipment and remote controlling software
- We list all our lyrics in our playbills and we love for our patrons to read these lyrics and possibly even follow along during the concert

Q28: What existing back of performer spaces work well and what do you like about them?

- Answered: 3   Skipped: 0

- Amount of dressing rooms is very nice. Large lounge area for our large group is nice, a separate dressing area for the Phil and Choir away from soloists is nice. Closeness to stage is optimal for both SR and SL entrances. The kitchen area is also very convenient
- We like the many changing rooms and large space to meet
- We love the use of the green room and dressing rooms for our conductors. We also love using the room on the 2nd tier near the front of house. That has been wonderful

Q29: If you could add any additional performer spaces, what would those be and what would they include?

- Answered: 2 Skipped: 1

- I think we use them all. The instrumental gets a bit hectic but we make it work
- Quick-change rooms would be nice off stage-right and left

Q30: What existing back of house spaces work well and what do you like about them?

- Answered: 2 Skipped: 1

- Lots of changing rooms and large space to meet with the company before the show
- We use green room and back hallway

Q31: If you could add any additional back of house spaces, what would those be and what would they include?

- Answered: 1 Skipped: 2

- Quick Changing Rooms off Stage Right and Left

Q32: Would you recommended any changes to the current ticket office?

- Answered: 2 Skipped: 1

- N/A
- Not familiar with it to give feedback

Q33: How could we improve the seating inside the auditorium?

- Answered: 3 Skipped: 0

- Add a center aisle or two aisles to make it easier for people to exit if there is something urgent. If you sit center of house, it's is very hard to get out and causes a lot of disruption. It also would help to move forward and backwards in the house without having to go out to the hallways
- It's great
- The long rows are a little inconvenient to get in and out of for most

Q34: How could we improve our wayfinding and informational signage?

- Answered: 2 Skipped: 1

- It's great
- Not familiar with it to give feedback

Q35: What works well in the current lobby?

- Answered: 2 Skipped: 1

- Not familiar with it to give feedback
- Ushers are wonderful

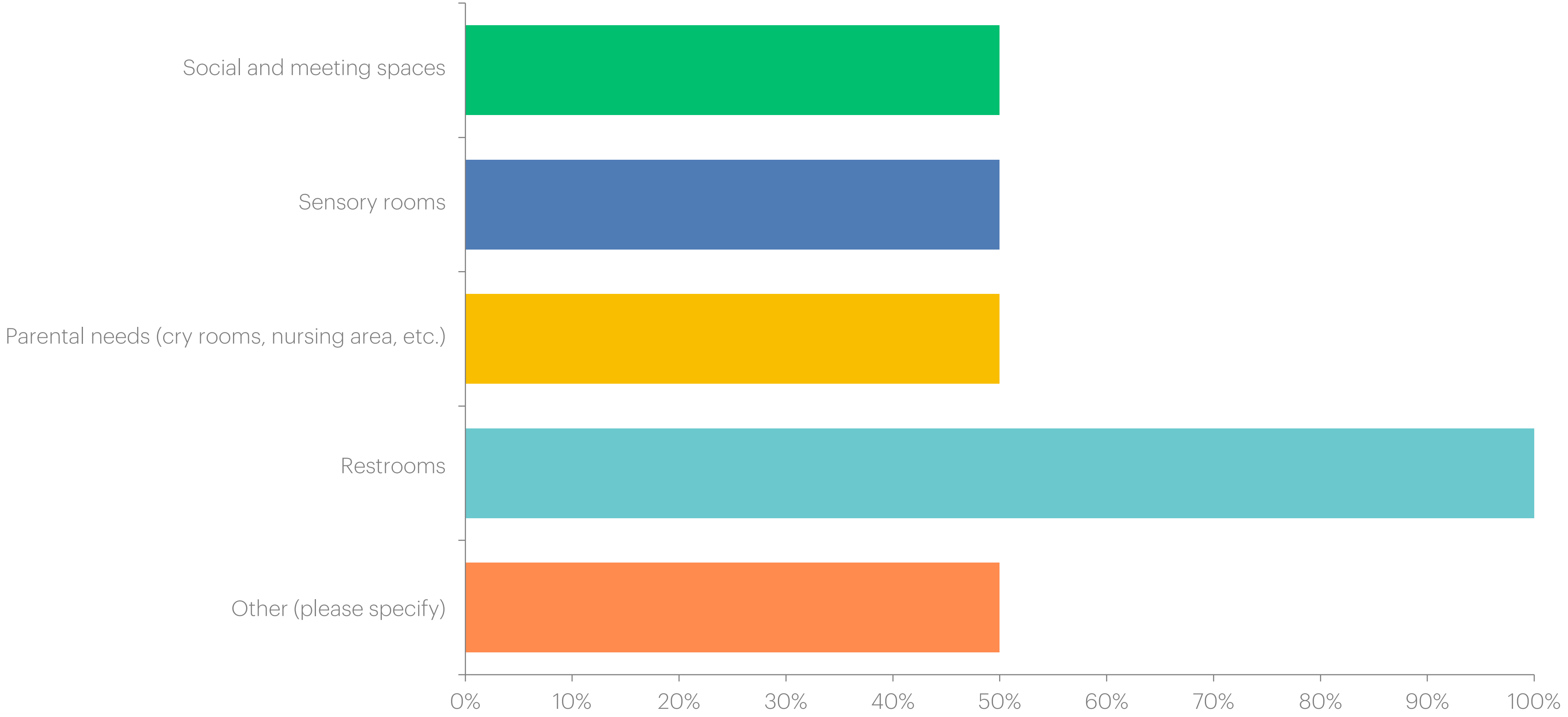
Q36: What barriers exist in the current lobby space that need to be addressed through this process?

- Answered: 2 Skipped: 1

- Not familiar with it to give feedback

Q37: What types of spaces would be important to add to the lobby or elsewhere in the building?

- Answered: 2 Skipped: 1



Q37: What types of spaces would be important to add to the lobby or elsewhere in the building?

- Answered: 2 Skipped: 1

ANSWER CHOICES	RESPONSES	
Social and meeting spaces	50.0%	1
Sensory rooms	50.0%	1
Parental needs (cry rooms, nursing area, etc.)	50.0%	1
Restrooms	100%	2
Other (please specify)	50.0%	1
TOTAL		6

Q38: How would you use a renovated lobby space?

- Answered: 1 Skipped: 2

- We like to have a youth philharmonic play while our patrons are waiting to be seated, and we often have raffles or other fundraising opportunities happening in the lobby

Q39: What would need to change to make these events/activities possible?

- Answered: 0 Skipped: 3

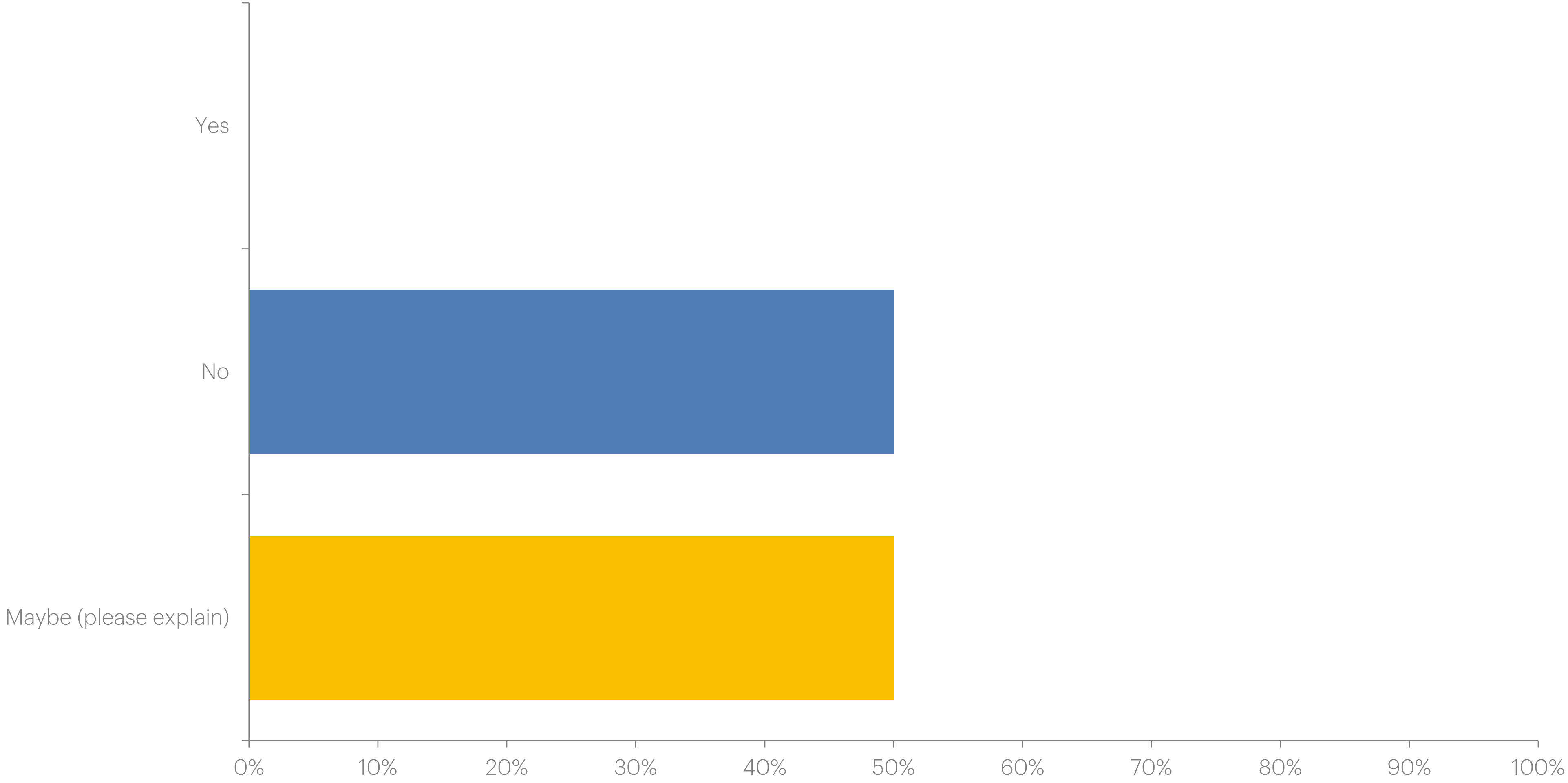
Q40: What should the experience feel like when you are in the Abravanel Hall lobby?

- Answered: 1 Skipped: 2

- That you are in a sophisticated, elegant and extraordinary place where you will experience music that will lift you up

Q41: Would you consider using the Plaza for an event?

- Answered: 2 Skipped: 1



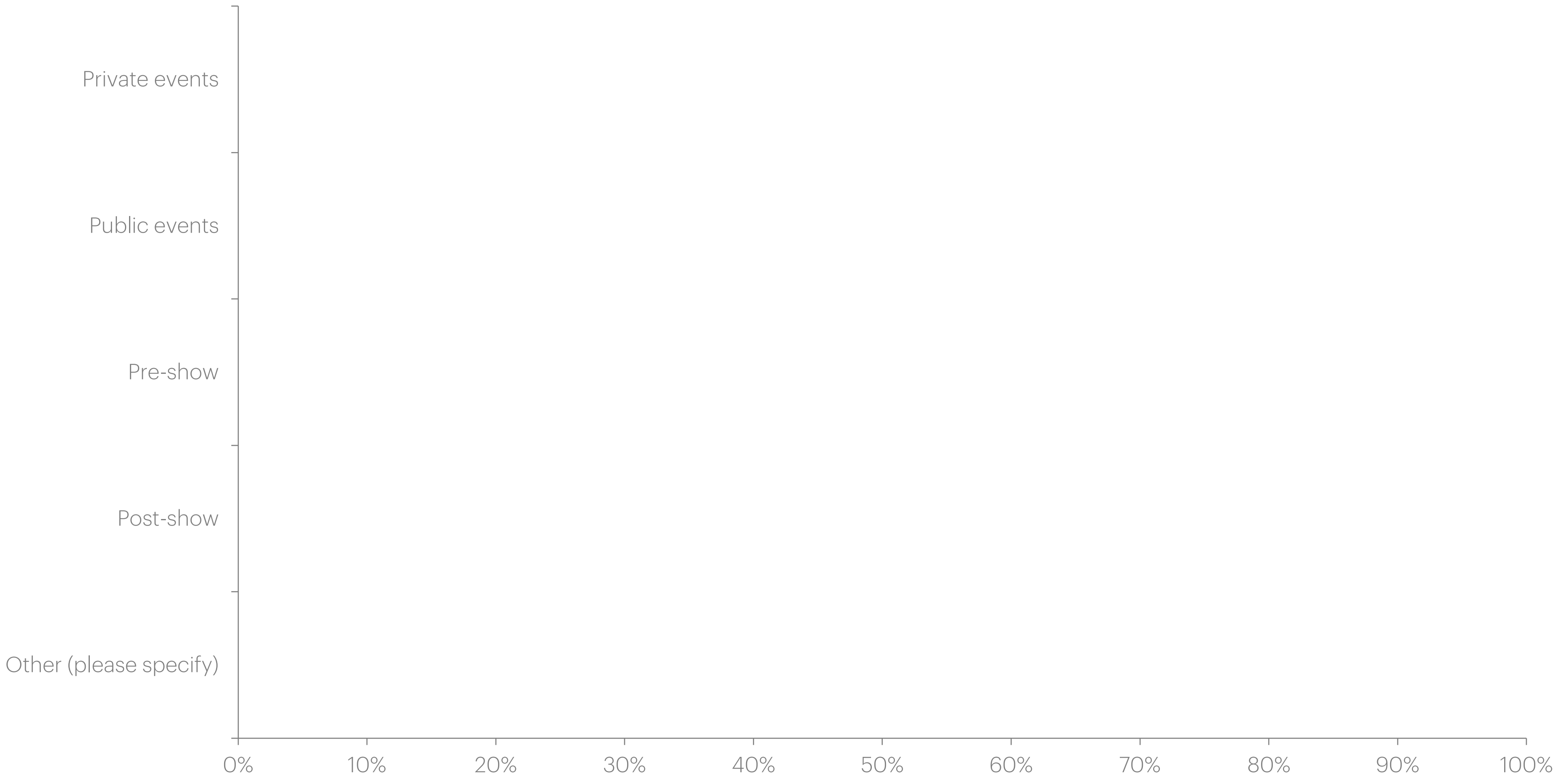
Q41: Would you consider using the Plaza for an event?

- Answered: 2 Skipped: 1

ANSWER CHOICES	RESPONSES	
Yes	0%	0
No	50.0%	1
Maybe (please explain)	50.0%	1
TOTAL		2

Q42: How would you anticipate using the Plaza?

- Answered: 0   Skipped: 3



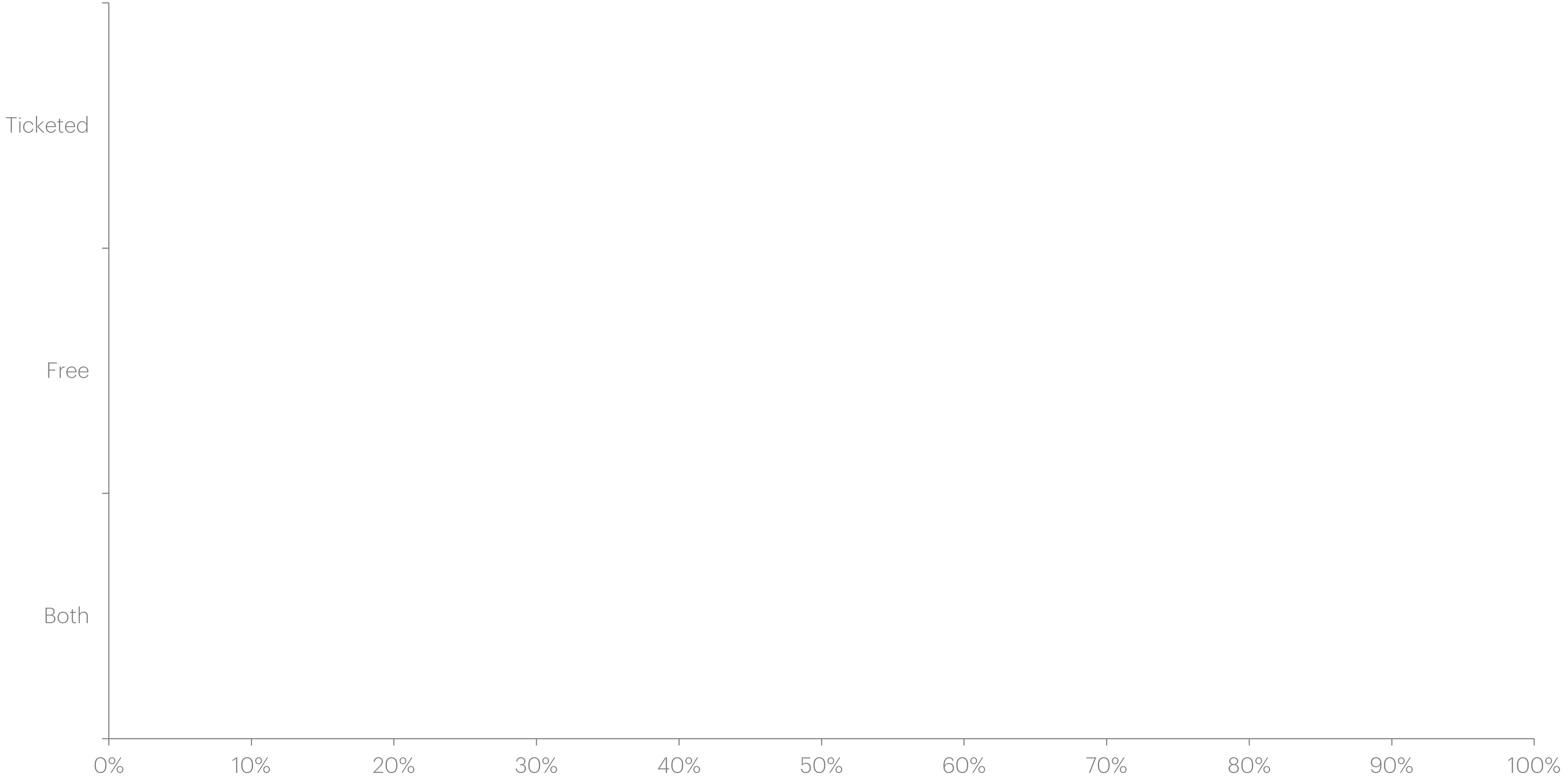
Q42: How would you anticipate using the Plaza?

- Answered: 0   Skipped: 3

ANSWER CHOICES	RESPONSES	
Private events	0%	0
Public events	0%	0
Pre-show	0%	0
Post-show	0%	0
Other (please specify)	0%	0
TOTAL		0

Q43: Would these events be ticketed or free?

- Answered: 0   Skipped: 3



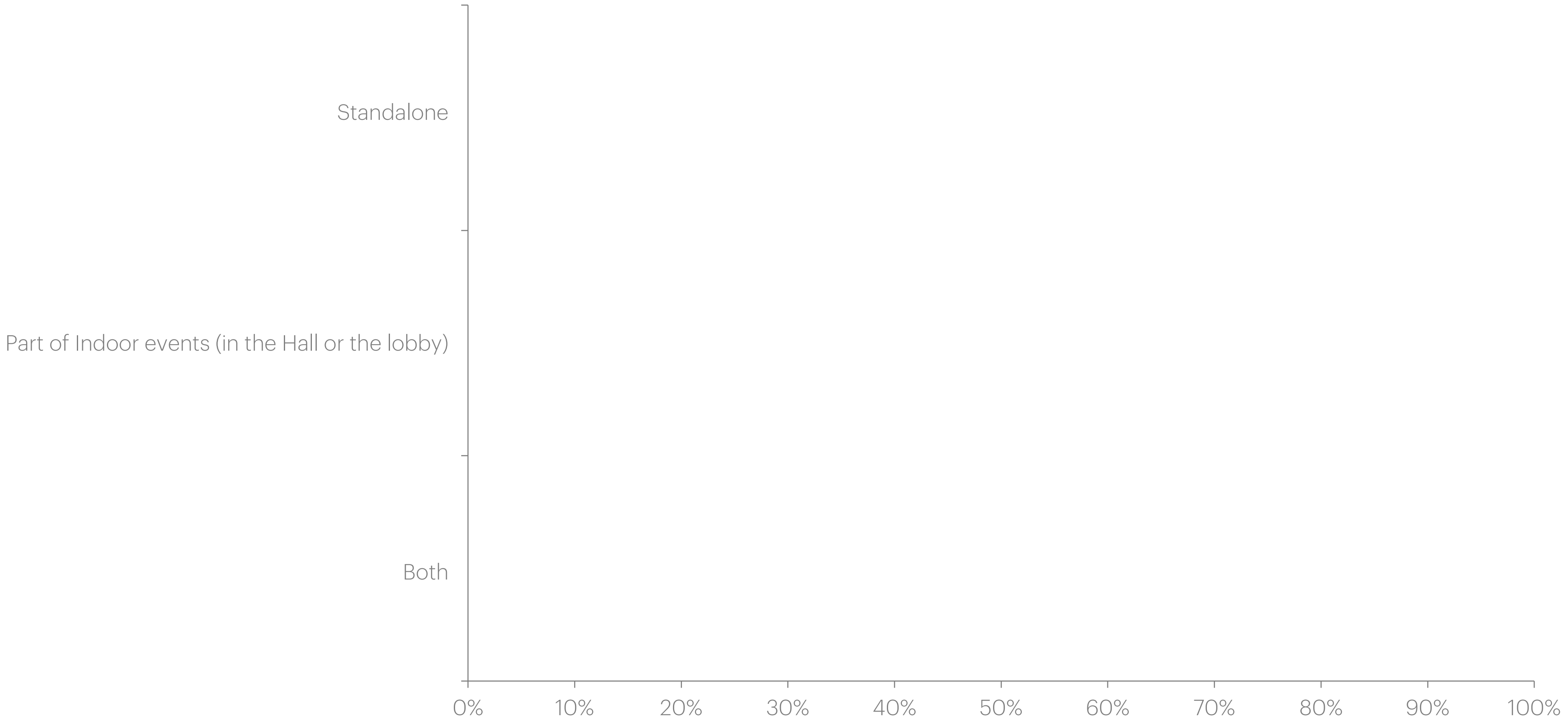
Q43: Would these events be ticketed or free?

- Answered: 0   Skipped: 3

ANSWER CHOICES	RESPONSES	
Ticketed	0%	0
Free	0%	0
Both	0%	0
TOTAL		0

Q44: Would events on the Plaza be standalone events or a part of events inside?

- Answered: 0   Skipped: 3



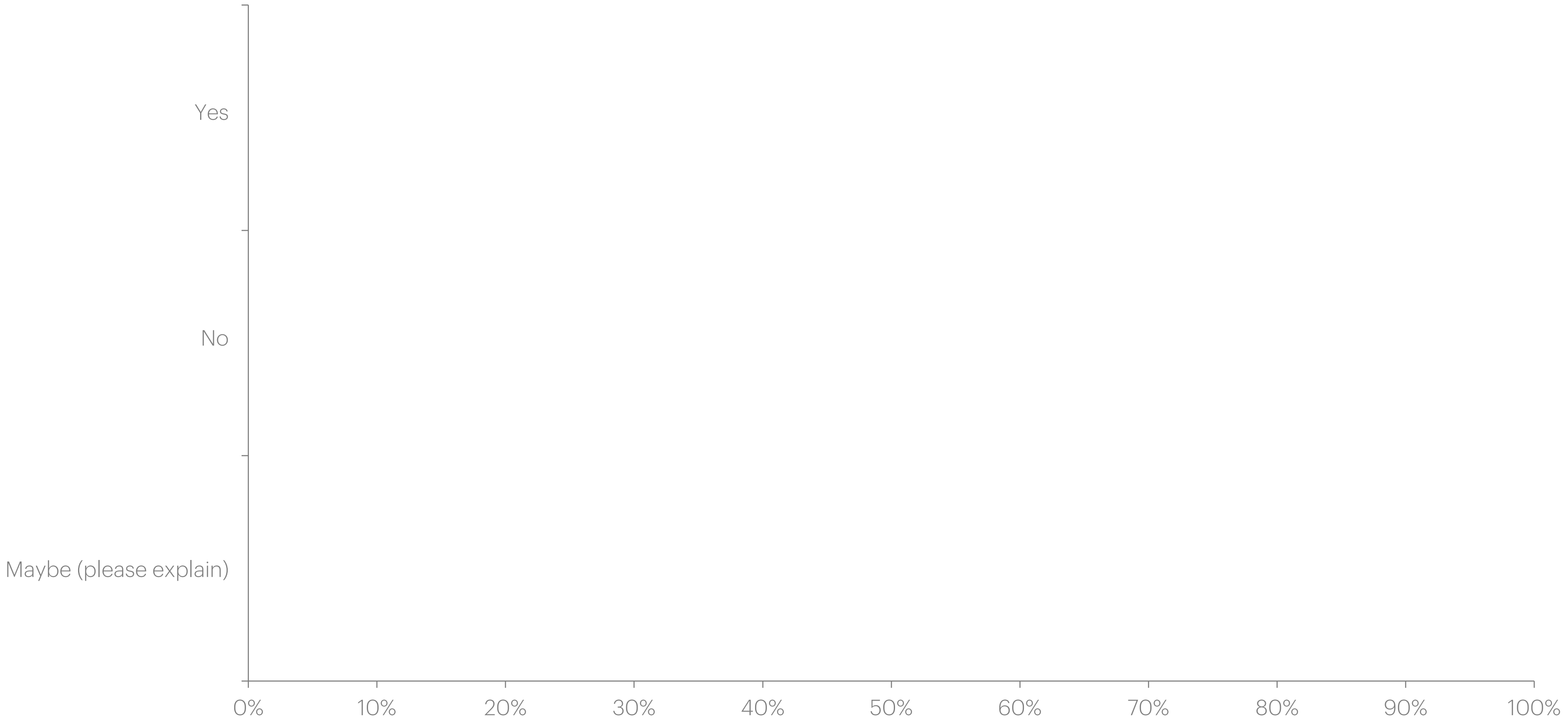
Q44: Would events on the Plaza be standalone events or a part of events inside?

- Answered: 0   Skipped: 3

ANSWER CHOICES	RESPONSES	
Standalone	0%	0
Part of Indoor events (in the Hall or the lobby)	0%	0
Both	0%	0
TOTAL		0

Q45: Would you consider renting the Plaza for an event if another organization was presenting a program in Abravanel Hall?

- Answered: 0   Skipped: 3



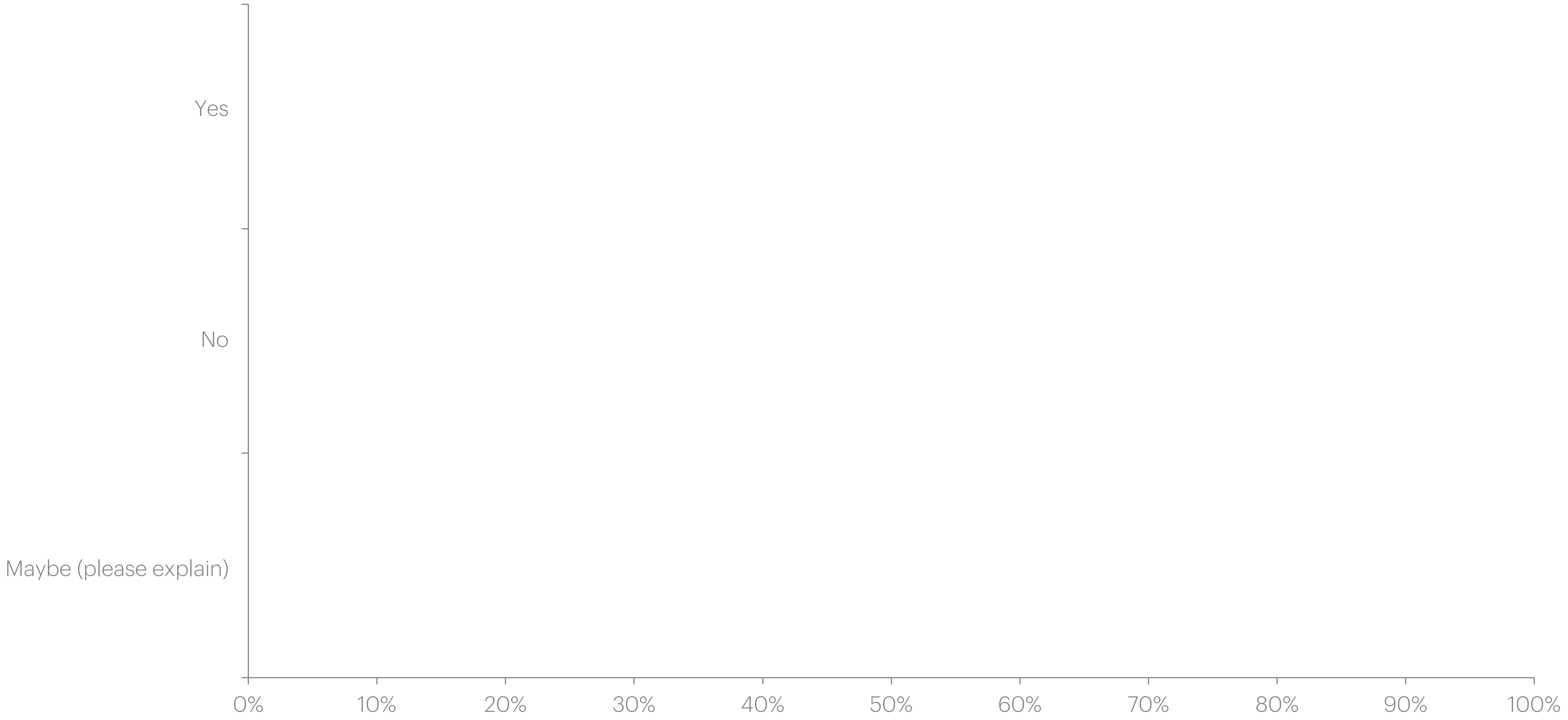
Q45: Would you consider renting the Plaza for an event if another organization was presenting a program in Abravanel Hall?

- Answered: 0 Skipped: 3

ANSWER CHOICES	RESPONSES	
Yes	0%	0
No	0%	0
Maybe (please explain)	0%	0
TOTAL		0

Q46: Would you be interested in renting the Plaza and the Hall together?

- Answered: 0   Skipped: 3



Q46: Would you be interested in renting the Plaza and the Hall together?

- Answered: 0 Skipped: 3

ANSWER CHOICES	RESPONSES	
Yes	0%	0
No	0%	0
Maybe (please explain)	0%	0
TOTAL		0

Q47: What level of technical infrastructure and other functions would be required?

- Answered: 0 Skipped: 3

Q48: What level of back of house support would be required?

- Answered: 0 Skipped: 3

Q49: What patron amenities would be required?

- Answered: 0 Skipped: 3

Q50: What accessibility support would be required?

- Answered: 0 Skipped: 3

Q51: What safety and security support would be required?

- Answered: 0 Skipped: 3

Q52: Do you have any concerns about renting the Plaza?

- Answered: 0 Skipped: 3

Q53: Are there any barriers we should consider in this process?

- Answered: 0 Skipped: 3

Q54: What's your vision of how your community can collaborate with others and find new synergy inside and outside of Abravanel?

- Answered: 0 Skipped: 3

Q55: Is there anything else about this project and our future planning that you would like to add?

- Answered: 0 Skipped: 3

Abravanel Hall Community Stakeholder Survey

- Date Created: Wednesday, July 12, 2023
- Complete Responses: 3

Q2: What works well at Abravanel Hall?

- Answered: 3 Skipped: 0

- Great concert venue
- The location and accessibility
- The open lobby space is beautiful and a pleasant place to be while waiting before a performance starts

Q3: What doesn’t work well in the Hall?

- Answered: 3 Skipped: 0

- Complex stairs and elevator access
- I really don't go too often
- Sometimes there is a bit of a bottle neck getting into the building. Exiting after a performance is also quite slow

Q4: What are the opportunities at Abravanel Hall?

- Answered: 1 Skipped: 2

- One of the BEST corners in downtown SLC – show piece center

Q5: What works well in the current lobby?

- Answered: 3 Skipped: 0

- Spacious, high visibility in and out
- The art piece is engaging and beautiful
- The lobby is beautiful and a nice space to mingle before and after shows. The restrooms have always been nice for me and I've never had to wait in a line there

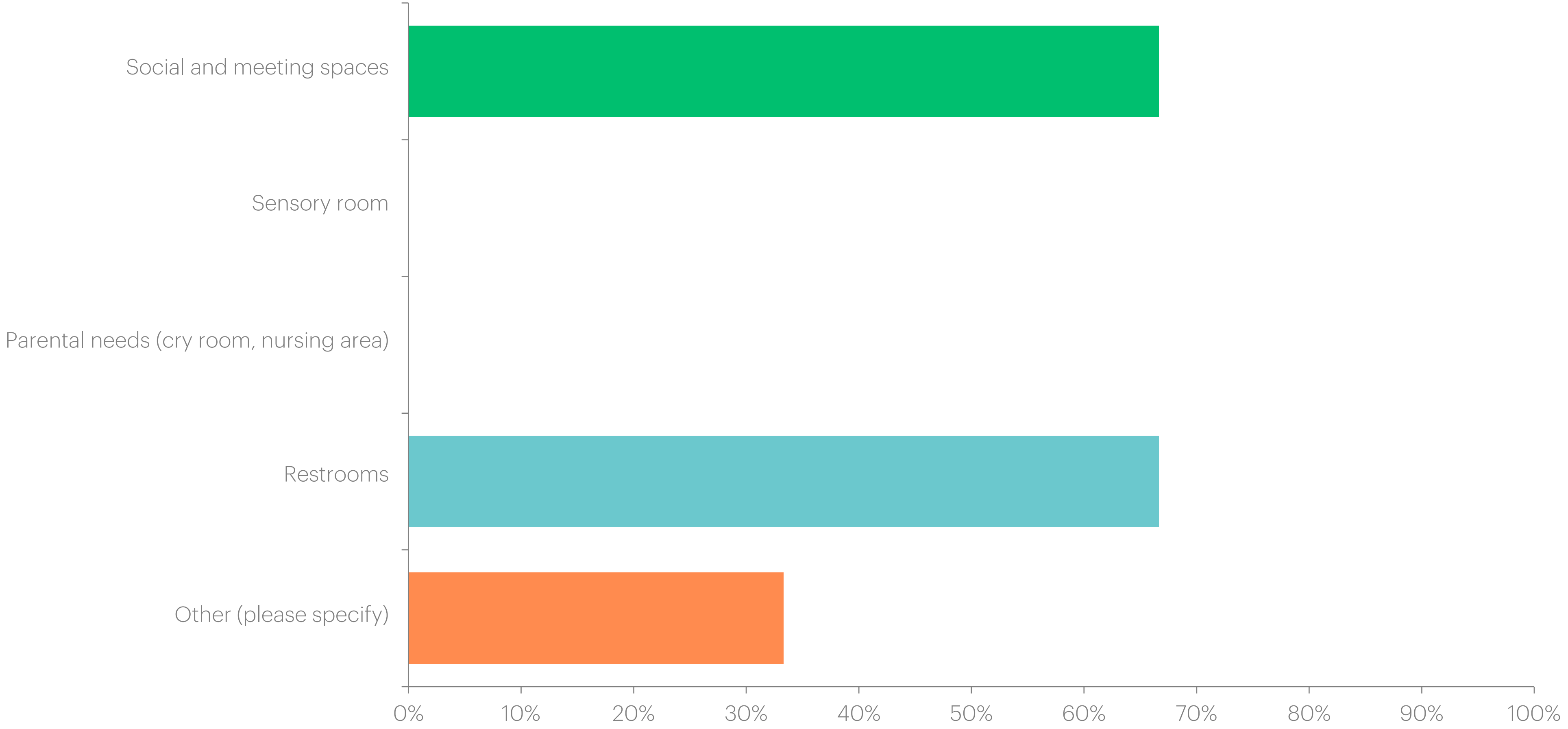
Q6: What is not working in the current lobby?

- Answered: 3 Skipped: 0

- Could use more seating
- Its space is a little cramped with a big event
- Traffic clogging

Q7: What types of spaces would be important to add to the lobby or elsewhere in the building? Select all that apply

- Answered: 3   Skipped: 0



Q7: What types of spaces would be important to add to the lobby or elsewhere in the building? Select all that apply

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Social and meeting spaces	66.67%	2
Sensory room	0%	0
Parental needs (cry room, nursing area)	0%	0
Restrooms	66.67%	2
Other (please specify)	33.33%	1
TOTAL		5

Q8: Would you recommend any changes to the current ticket office?

- Answered: 3 Skipped: 0

- It's a little off the beatenpath – more directions
- No
- No. Customer service has always been good to me too, the few times I've had to call with questions

Q9: How could we improve seating inside the auditorium?

- Answered: 3 Skipped: 0

- A little more leg room would help people getting in and out past others who are already seated
- Not sure, other than raising seats for short people to see over
- Seating is fine

Q10: How could we improve our wayfinding and informational signage?

- Answered: 3 Skipped: 0

- I think signage is pretty clear
- More signage that's appropriate
- More visible signage

Q11: How could we make Abravanel Hall more welcoming to first-time patrons, especially those who may not have much experience attending events at this type of venue?

- Answered: 3 Skipped: 0

- Greeters do a good job with making patrons feel welcome, maybe add a few more especially near the entrance in the lobby
- Signage so I can quickly find out: how do I get to my seat?
- What to know "ahead of time" or a first-time user guide (online with tickets)

Q12: Do you have any comments or concerns about the audio quality inside the auditorium?

- Answered: 3 Skipped: 0

- I haven’t experienced any issues
- I've never had an issue
- None

Q13: Do you have any comments or concerns about the lighting inside the auditorium?

- Answered: 3 Skipped: 0

- I love the chandeliers. No issues with lighting overall
- No concerns
- None

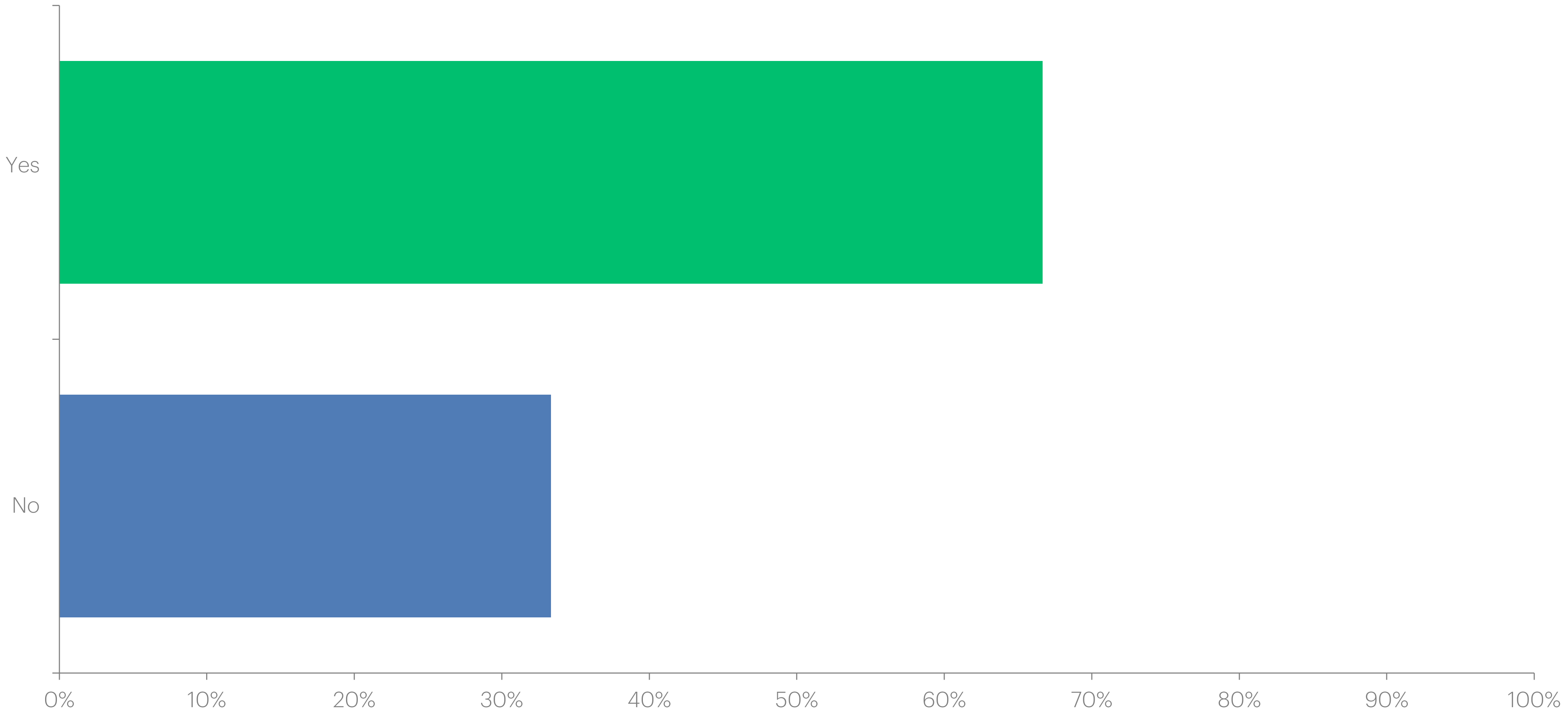
Q14: Do you have any comments or concerns about video or projections inside the auditorium?

- Answered: 3 Skipped: 0

- Haven't seen it. Assume it’s up to date
- N/A
- No experience here

Q15: Do you rely on the internet for virtual playbills or social media when visiting Abravanel Hall?

- Answered: 3 Skipped: 0



Q15: Do you rely on the internet for virtual playbills or social media when visiting Abravanel Hall?

- Answered: 3 Skipped: 0

ANSWER CHOICES	RESPONSES	
Yes	66.67%	2
No	33.33%	1
TOTAL		3

Q16: Do you have any comments or concerns about online access inside the auditorium?

- Answered: 2 Skipped: 1

- Haven't been there to use it, but I do know by personal experience that the Eccles is horrible. Couldn't access the internetthe last time I was there
- N/A

Q17: How would you recommend we activate the Plaza?

- Answered: 3 Skipped: 0

- Design that promotes socializing
- I think events and shows are a great idea and would bring more interest into events at Abravanel itself. Many of the public might not be aware of the venue and hosting free events would raise awareness
- It's one of 4 corners in the heart of downtown. And with City Creek and Temple Square it needs to complement the two. Make it more beautiful, inviting and engaging - there's a lot of space there that doesn't seem to be acting like much

Q18: What kind of events would you like to see on the Plaza?

- Answered: 3 Skipped: 0

- Pre-concert activities or live music
- Small concerts or just a nice passive space with more/better shade. It needs to be spill -ver/out for concerts too
- Small music performances and art installations

Q19: What partnerships would be important to make these happen?

- Answered: 3 Skipped: 0

- Downtown partners should see this as an anchor space. Downtown alliance, SLC RDA, LDS Church, City Creek etc.
- Involve the local music community
- There are many local artists and musicians that would provide mutually-beneficial partnerships. Advertising openings for these types of partnerships could bring in talent

Q20: What amenities or technology do you think would be important to have on the Plaza?

- Answered: 3 Skipped: 0

- I'm not sure what other large cities have in spaces like this but I'm sure in today's world there's lots of opportunities. Maybe an electronic board with trailers of upcoming concerts. Maybe include sound and lighting
- Lighting
- Sound and lights systems. Restrooms during events

Q21: What additions or changes to the plaza would help make it more welcoming as a public space when not being used for an event?

- Answered: 3 Skipped: 0

- More shade, benches, etc. (but the homeless might be difficult to keep out)
- Seating and art
- Seating, artwork, history

Q22: Is there anything else about Abravanel Hall you would like to share?

- Answered: 1 Skipped: 2

- This is an iconic cultural facility in our community and should showcase itself for what it offers