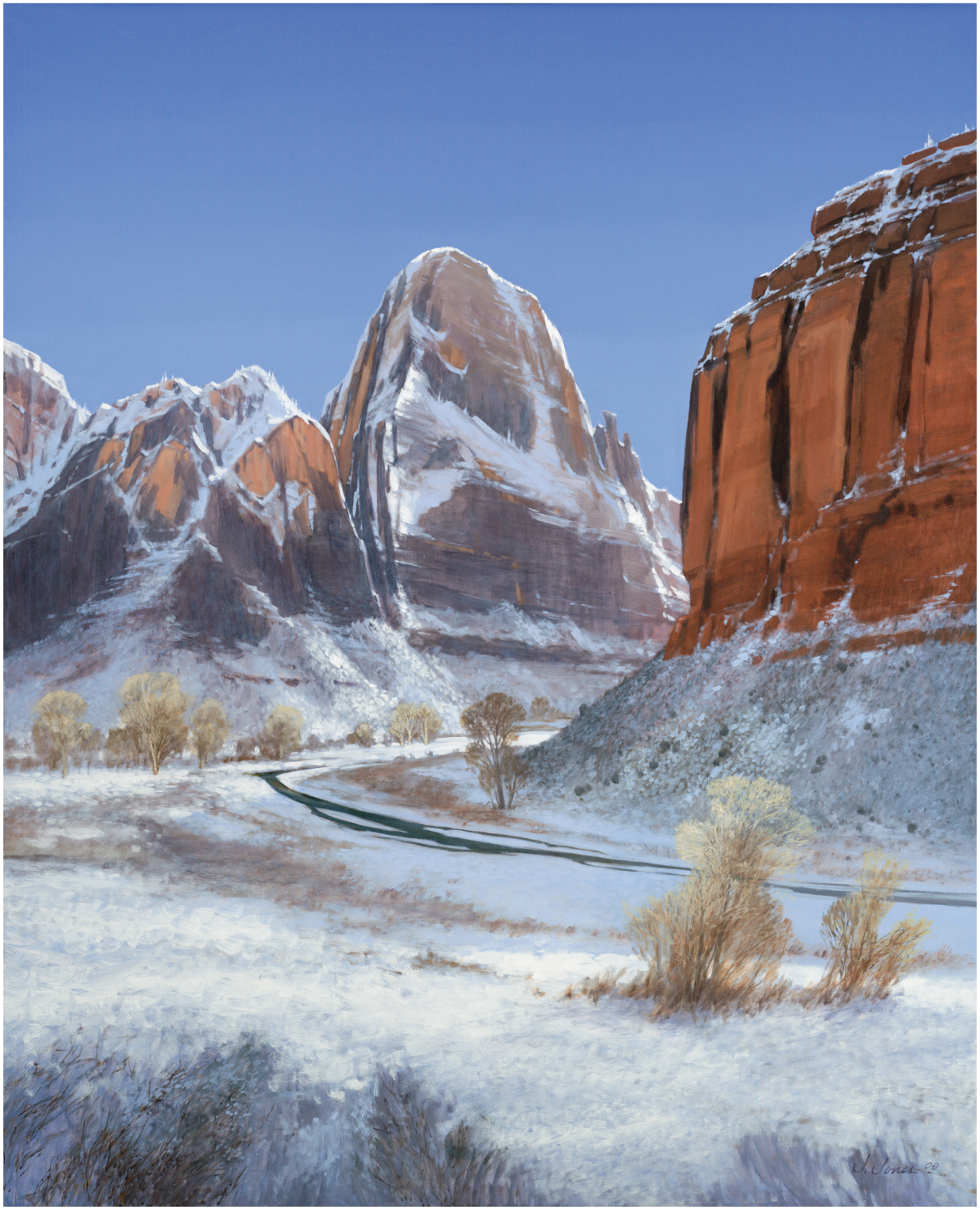
Programming *for* Southern Utah Museum of Art *at* Southern Utah University

prepared by ajc architects . September 2010 . DFCM No. 10055730 .

FOREWORD

In May 2010, the State of Utah Division of Facilities Construction and Management contracted ajc architects and Ann Frank Farrington to assist Southern Utah University in developing a Program Document for the Southern Utah Museum of Art (SUMA) to be located on campus in Cedar City, Utah. From May through September 2010, the Programming Team worked together with the stakeholders to develop the narratives, analyses, and graphics on the following pages. SUMA will be a vibrant museum driven by passion – an architectural gem representing the culture and materials of southern Utah. SUMA will be the home of the latest works by the notable red rock artist, Jim Jones, and The Braithwaite Fine Arts Gallery, currently housed on the SUU campus. Jim Jones' vision of an all-inclusive regional arts center will become a reality in the Southern Utah Museum of Art. This Document is intended to be the foundation for subsequent design and construction phases for the Southern Utah Museum of Art.

Jill A. Jones, AIA



Cover.
"Approaching Storm from Hopi Point"
Collection of Southern Utah University

Right.
"Snow on the Great White Throne"

Collection of Southern Utah University

STATE OF UTAH
DIVISION OF FACILITIES &
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David Buxton, Director — Date

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Shauna T. Mendini, Interim Dean — Date
College of Performing & Visual Art

Reece Summers Nov. 2, 2010

Reece Summers, Director & Curator — Date
Braithwaite Fine Art Gallery

We have reviewed the Southern Utah Museum of Art Program Document and warrant that it adequately represents our request for a facility to fulfill our mission and programmatic needs. All appropriate parties representing the Southern Utah Museum of Art have reviewed it for approval.

Review Signatures

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Dorian Page, Chair
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Wayne Clark
Leslie Forrester
Anne Gardner
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Susan Harris	Southern Utah University Arts & Design
Wayne Clark	Gallery Advisory Council
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SUMA PROGRAM DOCUMENT

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Review Signatures
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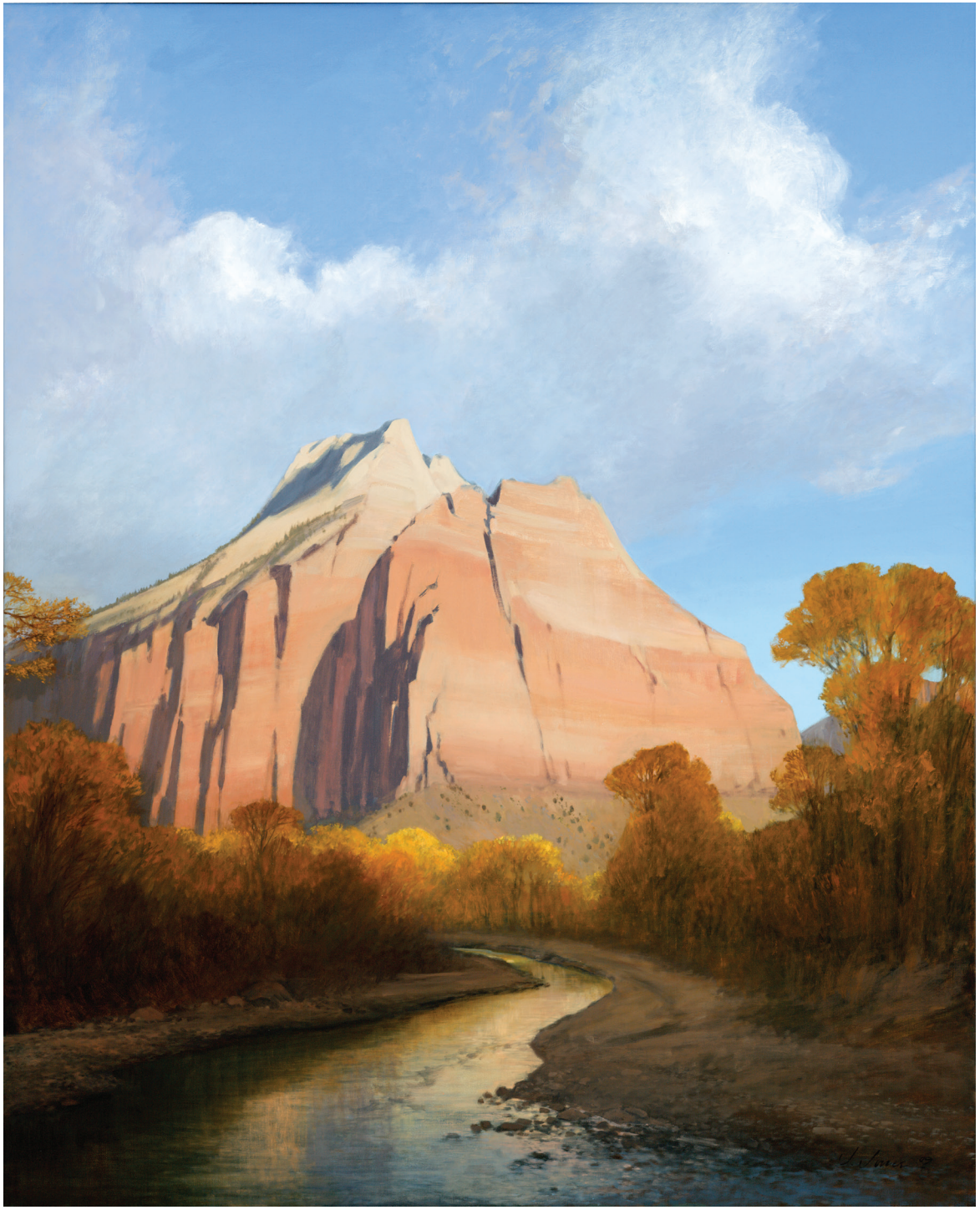
Executive Summary

01



"Cathedral Mountain"
Collection of Southern Utah University

EXECUTIVE SUMMARY

PROJECT HISTORY AND JUSTIFICATION

Southern Utah's wild landscape is revered globally, and has lured outdoor enthusiasts, explorers and amateur artists since the beginning of its settlement in the 1800's. Southern Utah University (SUU), founded in Cedar City, Utah, is just north of Zion National Park, and west of Bryce Canyon National Park and Cedar Breaks National Monument. Surrounded and inspired by this natural scenery, SUU and the region's vibrant art community actively support and engage the Arts. The community welcomes thousands of visitors from Utah and around the world, annually hosting the award-winning Shakespearean Festival, on grounds adjacent to SUU's campus.

SUU, founded in 1897 and called the Branch Normal School, originally functioned as a small teacher training institution. It has evolved significantly over the past century, with more than 7,000 students currently enrolled (and enrollment projected to increase in the coming decade). SUU, with the leadership of President Benson and dedicated staff and faculty, is committed to academic excellence, community and social responsibility, involvement and personal growth. Today, SUU's College of Performing and Visual Arts currently enrolls over 569 (2009) students in departments for Art and Design, Music, Theatre Arts/Dance, and Master of Fine Arts in Arts Administration Graduate Studies.

Arising from the need to inventory and establish a local museum collection, the Friend's of the Braithwaite Gallery was established in 1976. For nearly 35 years, The Braithwaite has served SUU and the community as a resource center for visual arts; mounting exhibits, offering related programs, and preserving its collection of fine art. Recently, The Braithwaite worked with renowned local artist Jim Jones' work to produce a retrospective of his work. At Jones' death in 2009, his entire estate and copyright to all his work was gifted to SUU.

Since its establishment, The Braithwaite has operated in an 1,100 square-foot make-shift gallery and collections space on the ground floor of the Liberal Arts Center building (LAC, originally constructed in 1899). With the addition of the Jim Jones repertoire and the gradual growth of the collection over the years, the gallery and collection space is woefully undersized, and limited in its ability to continue to grow. The Braithwaite's programs are correspondingly limited in size and scope. Exacerbating these challenges, is the fact that the LAC building, including its mechanical and electrical systems, do not meet standard environmental conditions suitable for the diverse art collection.

PLANNING FOR THE FUTURE

In response to the need for appropriate gallery and collection space, SUU and the art community established the Southern Utah Museum of Art (SUMA) project in 2009. With the recent gift of local artist Jim Jones' work, and a desire to establish its Arts Administration program as the first to provide a professional art museum operated by graduate students, all stakeholders are committed to moving the SUMA project forward, to become an accredited, significant art museum for the campus and region.

In order to capitalize on a well-established creative economy, and to solidify its role at the forefront of arts and education in Utah and the surrounding region, SUU needs a purpose-built art museum with cutting-edge galleries and environmentally secure collections and conservation spaces. SUMA will allow SUU to be on the forefront of Collegiate Arts Programs, providing students with hands-on experience running a world-class Fine Arts Museum as part of their college career. Along with flexible public gathering spaces, such a destination facility will strengthen existing programs, allow for new programs, and will ultimately provide a memorable experience for students, staff, administrators, faculty, and visitors alike.

Guided by this objective, SUU's President Benson, along with the Program Steering Committee, and project oversight from the State of Utah Division of Facilities and Construction Management (DFCM), began formal efforts for programming SUMA in the Spring of 2010. In May 2010, ajc architects and museum consultant Ann Frank Farrington were contracted to assist in the development of this document, including a Program of Spaces, Site Analysis, Building Requirements (Design Criteria), Individual Space Outline, and Construction Cost Estimate for the proposed building.

During the Programming process, The Programming Team - including representatives from DFCM, SUU administration, facilities management, department heads and faculty, as well as the community - participated in multiple workshops to develop an architectural and experiential vision, a comprehensive list of desired spaces, sustainability goals, site options, and stacking options.

The vision is simple and brilliant: SUMA will be Southern Utah's "Jewel" at the gateway to SUU. The architecture will harmonize with southern Utah's landscapes and SUU's historic campus. The architecture will embody adoration for art, engaging visitors in a memorable encounter with educators, students, artists and the art itself. The architecture will exemplify hope and opportunity of the future. SUMA will be designed to be sustainable: providing high-performance climatic controls for the art, a healthy and comfortable atmosphere, energy and water efficient, composed with long lasting, durable, and environmentally friendly materials and methods, with a goal to meet LEED Gold certification requirements.

BUILDING PROGRAM SUMMARY

The final program of spaces will provide SUU with a new 25,068 Gross-Square-Foot (GSF) art museum with over 16,294 Net-Square-Feet (NSF) of useable space for current and future needs. SUMA will consist of five major components:

1. Public Spaces	3,670 NSF
2. Galleries	6,630 NSF
3. Education	2,364 NSF
4. Collections and Conservation	2,706 NSF
5. Museum Administration	924 NSF
TOTAL	16,294 NSF*

*The building support spaces, such as the Mechanical, Electrical, and IT/AV rooms, and walls/structure and circulation make up the balance of the program (approximately 8,700 SF at an estimated efficiency rate of 65%). Relationships between SUMA's five main programmatic components, dictated that most spaces be located on one level, with a potential to locate building support spaces on a lower level. See Section 3 and 4 for a detailed description of building requirements, programmatic relationships and individual space requirements. Other solutions/studies analyzed at the workshops are included in the Appendix.

It was imperative to align the site plan with SUU's Master Plan. Thus, it was confirmed that SUMA will be located on the northwest corner of the intersection of University Boulevard and 300 West. The main entrance will orient to this intersection. While no new parking will be included in the SUMA project, the existing parking lot will be divided into two lots: 1. Student lot (on the west of SUMA), and 2. Visitors/Staff future lot (on the north side of SUMA). The parking lots will need to be reconfigured to allow for a new bus drop-off area and loading dock/delivery access. New vehicle access points will be required for access to the existing parking lots. Similarly, new pedestrian pathways from the parking lots will need to be thoughtfully considered as they connect to the existing community, and guide visitors to SUMA's main entrance. See Section 2 for a detailed site analysis.

BUILDING COST SUMMARY

The total construction budget for the SUMA project is $9,000,000 ("hard" costs only). The current construction cost estimate for the proposed SUMA building (25,068 GSF) and related site work is $8,998,009. This construction cost estimate includes LEED Gold certification requirements.

Included in the construction cost estimate is the utility tunnel extension. This work is required for expansion in this quandrant of campus, and is a critical component for this project.

SUMA CONSTRUCTION COST MODEL LINE ITEMS

Structural	$1,305,990
Architectural	$2,309,174
Mechanical	$1,150,147
Electrical	$ 927,776
SUBTOTAL (Building Only)	$ 5,693,087
Project-specific Site Work	$1,592,750
SUBTOTAL	$ 7,285,837
Mark-ups (includes general conditions 6%, bonding 1%, overhead & profit 3.5%, design contingency 10%, inflation to November 2011 3%)	$ 1,712,172
TOTAL CONSTRUCTION COST (including mark-ups)	$8,998,009**

**LEED Gold certification requirements are included. Project "soft" costs are NOT included.

See Section 5 for a detailed cost summary (including a list of exclusions, items affecting opinion of probable costs, assumptions, escalation, and contingencies), as well as comparable project cost analysis.

:
"Mt. Hayden Point Imperial"
Collection of Southern Utah University

PROJECT SCHEDULE

The proposed SUMA project schedule is based on a Design-Bid-Build delivery method. This schedule will need to be confirmed/modified as the project progress. Anticipated milestones and delivery dates are as follows:

Design Team Selection	November 2010
Schematic Design - Construction Documents	December 2010 - July 2011
General Contractor Selection	August 2011
Start of Construction	September 2011
Substantial Completion	October 2012
Commissioning	November 2012
Furniture, Fixtures and Equipment	December 2012
Owner Occupancy	December 2012

Site Analysis

02

Site Analysis

02.1

View toward entrance to Kolob Canyon.

SITE ANALYSIS

The Site Analysis component of the Program identifies the affects of the site on the program, project cost and schedule. It also describes the physical characteristics of the proposed site and vicinity. The Site Analysis incorporates maps, photographs and diagrams, illustrating the location, functional uses adjacent to the site, vehicular and pedestrian circulation, physical boundaries of the site, existing and proposed utilities, as well as local climate considerations. This section concludes with an option illustrating potential siting of the building. Additional site options explored during programming are located in the Appendix. The Site Analysis information is programmatic and should serve as an outline for a more detailed site analysis to be done in the design phase.

SITE LOCATION

Southern Utah University is located in Cedar City, Utah, approximately 170 miles northeast of Las Vegas, Nevada and 250 miles southwest of Salt Lake City, Utah. Cedar City is in Iron County, Utah, just west of Brian Head Cedar Breaks National Monument and the Brian Head Ski Resort. The entrance to Kolob Canyon, the northern extension of Zion National Park, is just 20 miles south of Cedar City. The main entrance of Zion National Park is approximately 60 miles to the south of Cedar City. There are eight designated National Parks, Monuments and Forests and numerous state parks within a 2-hour drive of Cedar City. Cedar City is nicknamed Festival City USA for the numerous festivals hosted there. The Southern Utah Museum of Art (SUMA) Building will be located on Southern Utah University's campus on the site of an existing parking lot at the northwest corner of University Boulevard (West Center Street) and 300 West Street. This intersection is one of the main campus entrances, located at the northeast corner of campus and three blocks to the west of the Cedar City Downtown Historic District. The Shakespearean Festival grounds are located diagonally to the SUMA Building site, at the southeast corner of University Boulevard (West Center Street) and 300 West Street. The proposed site is about a 3-minute walk to the center of campus and is less than 3-miles from the Cedar City Regional Airport. University Boulevard, the south boundary of the proposed site, is the primary vehicular route linking the campus with downtown Cedar City and with the residential neighborhoods to the west of the freeway. Traffic on this state highway is sometimes heavy in both directions and can be hazardous to pedestrians. 300 West Street forms the east edge of campus and the proposed site and is the primary link to highway commercial business along 200 North.

SITE SUMMARY

The site has a gradual slope of about 3.2 percent diagonally across the site, with the high point of 5901 feet elevation at the southeast corner sloping down to 5890 feet elevation at the northwest corner. Average high temperature in the summer is 87 degrees F while average low temperature in the winter is 44 degrees F. Summertime daylight is long and covers a wide range of angles from sunrise to sunset. Wintertime daylight is relatively short, and covers a narrower range of angles. The average annual rainfall is 10.7 inches and the average annual snowfall is 45.4 inches. No major water bodies exist on the immediate site. Prevailing wind at the site comes from the south-southwest although winds come from the north and other directions on occasion. The site offers an excellent view of the red rock foothills to the west.

The proposed site is currently an asphalt paved surface parking lot with large trees lining the streets to the south and east. There are grass lawns in the parking strips directly to the south and east of the proposed site with some shrubbery to the south screening traffic along University Boulevard from the site. While the preference is to retain as many of the existing site trees as possible, the design team will need to analyze which trees may be removed if they are at the end of their healthy life expectancy, and to maximize solar exposure to the SUMA Building. Directly to the north of the site is a gravel lot with a municipal swimming pool and facility to the northwest that will be demolished soon after this program document is completed. The J.L. Sorenson Physical Education Building lies to the far west of the site.
All necessary utilities (natural gas, power, water, storm drains, sewer lines, communication lines, etc.) currently exist in close proximity to the proposed site, and are generally available for connection. An extension to the existing underground utilities tunnel to the west of the proposed site will need to be constructed as part of the project to bring many of the existing utilities to the SUMA Building.

Vehicular access to the proposed site is currently from University Boulevard, however, access can also be considered from 300 West and Harding Avenue (W. 100 North). The existing parking lot to the west of the proposed SUMA Building site will not be improved as part of the SUMA Building project except as necessary to create a smooth transition between existing parking and proposed plaza hardscape. The existing gravel and asphalt lots to the north of the proposed SUMA Building Site will be improved only to the extent necessary to allow semi-trucks access to the building's loading dock. The existing parking lot on the proposed site is currently used by SUU students and Shakespearean Festival patrons. There is a municipal parking structure located within a 5-minute walk of the site which could augment the remaining parking after the SUMA Building is constructed.

View of site from southeast corner of University Boulevard at N. 300 West.

Cedar Area Transportation Service, or CATS, operates a scheduled wheelchair-accessible bus service, with one route providing riders access to numerous locations throughout the Cedar City community. There is a CATS stop on University Boulevard to the west of the site and on 300 West to the south of the site. There is a pedestrian mid-block crosswalk on University Boulevard to the west of the site and crosswalks at the major street intersections adjacent to the site. The site is connected to the community for pedestrians with concrete sidewalks and limited mid-block cross-walks but could be improved to make the City more pedestrian friendly.

An ALTA survey, soils analysis and geotechnical report are underway for use during future design phases. The survey will document existing topographic slope and drainage characteristics of the site. The survey will also provide more reliable locations of existing utilities and existing improvements such as fences, ditches, curbs, etc. Southern Utah University has provided existing topography for use in the Program Document. Related Civil and Structural calculations and assumptions included in this Program Document are based on known collapsible soils in the area. The finalized soils analysis and site topography will be required to guide the Design Team when developing structural options and drainage strategies. The geotechnical report will document seismic characteristics of the site, groundwater presence and depth, and any other subsurface hazards that will need to be considered during the planning and design phases. Both the Alta survey and geotechnical report will be made available for use prior to the design and construction phases of the project.

Based on the Site Analysis provided in this section, the Programming Team believes that the proposed site can support the 25,068 GSF building, open/green spaces, and required parking for the building. The proposed site provides a very desirable location for the SUMA building. It has advantageous physical and creative connectivity to the University's Braithwaite Liberal Arts Center and to the Shakespeare Festival grounds as well as proximity to the historic downtown and surrounding residential and commercial districts. The site will support future growth of the SUMA Building in addition to a phase II Performing Arts Building with close or physical connection to the SUMA Building.

The maps, photographs and diagrams on the following pages illustrate the information outlined above. The Selected Site Plan Option at the conclusion of this section suggests possible siting strategies to maximize daylight, views, vehicular and pedestrian connectivity.

SITE CONTEXT

The physical context surrounding the proposed site on Southern Utah University's Campus ranges from large-scale three and four-story academic, institutional and performing arts buildings to one and two-story single-family residences, apartments, municipal offices, banks, light industrial and small retail developments. The portion of the site to the northwest of the proposed SUMA Building is planned as playing fields. The existing structures directly adjacent to the SUMA site range from brick, stone and glass to metal and wood siding. The red rock foothills to the west of the site are a constant reminder of the proximity to the red rock landscapes predominant in Jim Jones' work.

Site Planning Principles

02.2

Site Options developed for the Southern Utah Museum of Art have identified key open spaces between the proposed SUMA building, the two adjacent parking areas and the corner of 300 West and University Boulevard. With the corner of 300 West and University Boulevard defined as the "gateway" to Southern Utah University, the SUMA site will play a significant role in helping to define this prominent campus entrance. The SUMA building must have an open, inviting character that expresses the connection of this proposed cultural amenity to both the Southern Utah University Campus and the community of Cedar City. The site development surrounding the building should equally express these connections. The design team should consult the Southern Utah University Campus Master Plan (2008) to ensure the proposed building and site design are in keeping with the overall campus design.

BUILDING, STREET AND PEDESTRIAN CORRIDOR RELATIONSHIP

The setbacks along 300 West and University Boulevard should allow for a generous public plaza along these streets. Pedestrian access should be maintained from these street frontages and the northwest corner of this gateway intersection. The main pedestrian entry to the building should be visibly accessible from both of these streets. The building siting should provide direct access to existing and proposed pedestrian corridors. Vehicular access to the site should occur from both 300 West and University Boulevard but far enough from the corner of these streets to maintain a pedestrian only plaza surrounding the building.

BUILDING ORIENTATION

The SUMA building should be oriented such that visitors, whether arriving by foot, bicycle, car, bus or other, have a clear understanding of where the building entrance is and how they need to get to it. Building orientation should be consistent with sustainable practices and should make use of natural light to the greatest extent possible. This should conserve energy and provide a healthy environment for the users. The building orientation should account for solar conditions to optimize daylight harvesting and minimize glare and thermal gain. It is preferable than no part of the building with large exterior openings be oriented to the west in order to minimize difficult to control solar gain.

The gallery and collections spaces should be oriented to the north to minimize thermal gain and to allow the use of natural light with minimal UV exposure. The grand lobby, offices, classroom and other controlled environments can be oriented to the south, if sufficient solar control devices are provided. Workspaces that are continuously occupied should be placed at or near a window. When this is not possible, every effort should be made to provide "borrowed" daylight. Transparent and low partitions should be used where possible to allow natural light penetration as deep into the building as possible.

RELATIONSHIP TO THE SOUTHERN UTAH UNIVERSITY CAMPUS AND COMMUNITY OF CEDAR CITY

The proposed SUMA Building should be sited in a way that expresses its strong connection to Southern Utah University and the Community of Cedar City. A successful design solution should establish the building concept, volume and materials and ensure that future buildings will be allowed to be unique to their functions and at the same time well integrated with the proposed SUMA Building.

VIEWS

Preserve/enhance existing view opportunities to the east. Prioritize views from very public outdoor and public indoor spaces over those from private spaces. Create viewing opportunities that will help visitors relate to the Jim Jones paintings housed within the galleries and the red rock mountains that dominate southern Utah's natural environment directly to the east, visible from the SUMA site.

OUTDOOR SPACES

Create linked outdoor spaces or "outdoor rooms" with both spatial closure and views outward. Outdoor gathering spaces surrounding the SUMA building will be used year-round. If designed appropriately, small areas of hardscape combined with landscaped areas with overhead protection from the summer sun and barriers from winter winds should be provided for outdoor gathering.

Outdoor, informal, unenclosed sculpture gardens should surround the building and be well-integrated with the hardscape and landscape elements surrounding the building. Provide a variety of campus space-types: quiet-active, green-paved, open-closed, shaded-sunny, etc. Limit hardscape to those areas where large gatherings or outdoor classes will be held. In principle, most outdoor spaces should not be hardscape. Provide fixed and movable site furniture at strategic quiet and busy locations to accommodate both quiet lounging and group interaction. Also provide connections, links and other methods of integration to the Southern Utah University Campus and the community of Cedar City utilizing open spaces and pathways. Planning should consider future improvements by Cedar City to the surrounding blocks to make the community more pedestrian friendly.

SHADE AND SHADOW

Minimize building shadowing of habitable outdoor spaces in winter, spring and fall while maximizing shade in summer. Utilize mature deciduous tree canopies as much as possible to achieve this end. Provide areas of seating in full-sun to extend the useful seasons into the late fall and early spring.

LANDSCAPE

All areas not covered by building, parking or other hard surfaces, including pedestrian corridors, shall be landscaped. Proposed development needs to reinforce the architecture of the proposed SUMA building without overpowering it. Plant selections should be well-adapted to the site and emphasize the use of native "water-wise" plants. Plant selections should be easily maintained and not susceptible to diseases and pests. Plant selections shall not contain fruit that may stain sidewalks or cause walking hazards.

The SUMA project will be responsible for development of the landscape and streets that border the immediate site of the proposed building. Minimal improvements will be made to existing surface parking lots to help integrate them with the SUMA site. The extension of the existing utilities tunnel to the proposed SUMA Building and subsequent surface treatment / landscaping is included in the SUMA project.

IRRIGATION

Sustainable practices will be required in designing the landscape with a goal of little to no irrigation required after new plant materials have had a chance to become established. Temporary irrigation may be required during the first year or two after materials have been planted.

PARKING

The existing surface parking lot to the west of the proposed SUMA site will need minor improvements as needed to integrate with the proposed SUMA hardscape and landscape areas. These improvements will be part of the SUMA project, turning this area into the main parking lot for the SUMA building until future improvements to the north parking area are completed (not a part of the SUMA project). The west parking lot stall striping may be maintained for the most part, with minor modifications as required to provide a clear zone for bus drop-off and circulation. Access to this parking lot is from University Boulevard.
The north parking lot will be improved as part of the SUMA project only to the extent required to provide for service deliveries to the loading dock. Complete development of the north parking lot will allow this area to be used for visitor and staff parking in addition to service access. Access to this loading zone will be from 300 West. Additional Access from the north may be incorporated in the future.

LIGHTING

Adequate lighting shall be provided for all pedestrian areas, loading zone and building entrances. Minimum foot-candle requirements must be considered with respect to safety and environmental sustainability. All exterior light fixtures shall be concealed source fixtures and shall meet the requirements for night sky protection and additional requirements of the local municipality or authority having jurisdiction. Exterior wall-mounted floodlights are prohibited.

SITE FURNISHINGS AND SIGNAGE

Site Furnishings shall include benches, trash receptacles, bike racks and shade structures. Planters and tree grates shall be included if appropriate and integrated with the landscape design. All site furnishings are to be in-keeping with the building and landscape design and are to be constructed with durable finishes such as cast concrete or natural metals. All furnishings should be vandal-resistant, easy to maintain and are to be coordinated with SUU Facilities requirements and campus standards.

All signage will be provided by Southern Utah University.

ACCESSIBILITY

Wherever possible, all site paths shall meet ADA criteria for slope and landings. If this is unfeasible in a particular location, provide elevator access within the new SUMA Building that will allow wheelchair users to transition the non-compliant grade condition. All usable outdoor spaces shall be fully accessible.

BUILDING ACCESS

Express the public shared nature of this building by connecting the grand lobby to the outdoor public spaces with extensive views in and out. Provide strong functional connections between the interior public spaces and exterior public spaces. The main entrance must be accessible from the corner of 300 West and University Boulevard and from both the west and future north parking lots.

EMERGENCY AND NON-ROUTINE SERVICE ACCESS

Design paths and walkways to accommodate emergency vehicles and occasional non-routine service access.

BICYCLE ACCESS

Provide for bicycle usage along all pedestrian corridors, and secure bicycle storage adjacent to the new SUMA Building entrance. Bicycle racks, rather than bike lockers, should be located conveniently near the main entrance without inconveniencing pedestrians.

LOADING AND SERVICE

It is recommended to locate the loading and service area away from the main entrance with easy access from 300 West. The loading and service area for the SUMA building should be well-screened from view from the main entrance at the corner of 300 West and University Boulevard.

MISCELLANEOUS ENCLOSURES

All transformers, generators and other electrical/mechanical equipment shall be enclosed within the building. Outdoor refuse collection areas shall be gated and visually screened from access streets and adjacent property by a completely opaque screen. Outdoor storage structures/areas are prohibited.

FUTURE BUILDINGS AND SUMA EXPANSION

Future expansion of the SUMA building and location of the phase II Performing Arts Building should be considered when developing the site plan. It is likely that additional gallery space will be needed as the Museum grows. It is important that future building expansion can happen with minimal disruption to the original galleries and spaces. Future gallery expansion should have direct connection to the original galleries. Consideration of future flow and ability to close one gallery off from another is important. Future visual connections to outdoor sculpture gardens should be considered.

The location of the loading and service entrance shown on the Selected Site Option should be easily integrated into the future development of the north parking. This integration should maximize parking stalls while maintaining the ability of a semi-trailer to access the loading dock. Keeping the loading dock screened from view is another consideration.

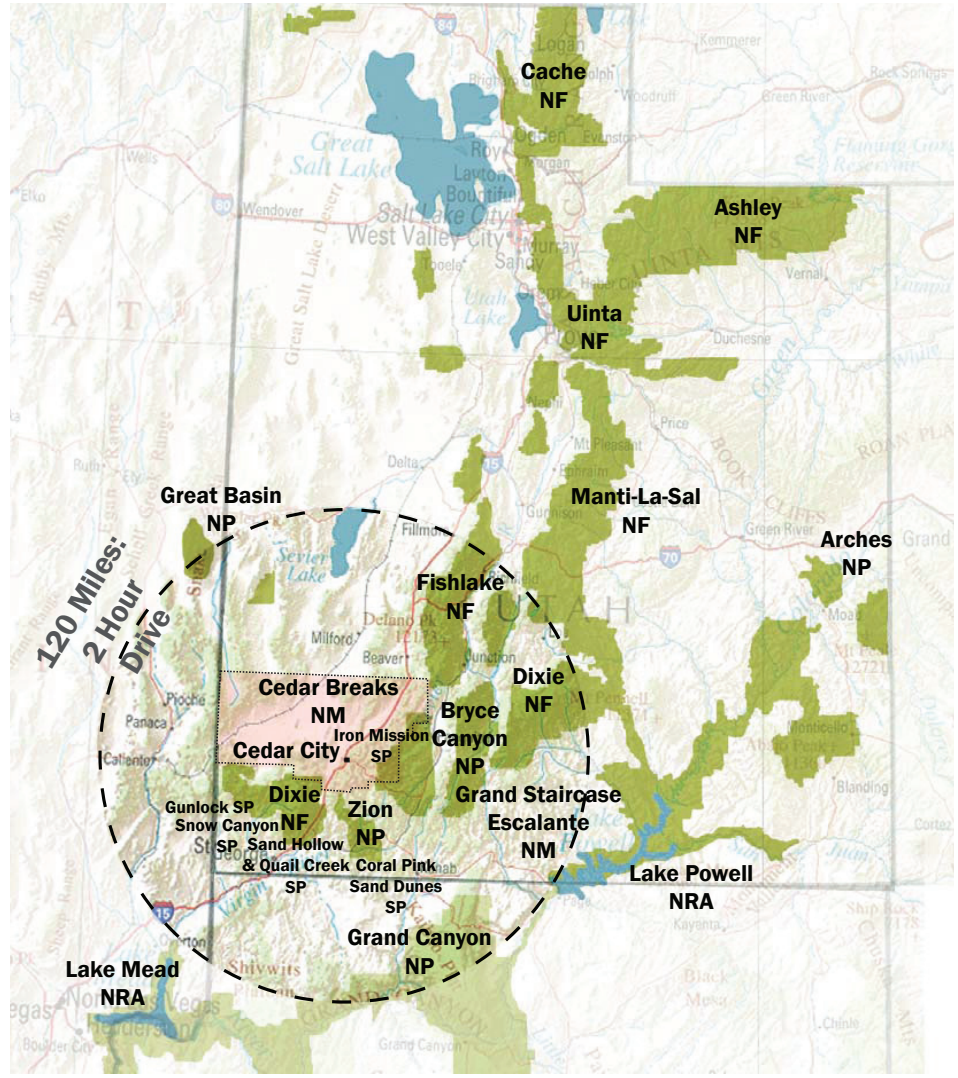
Site Analysis Maps

02.3

CEDAR CITY REGIONAL PLANS

Southern Utah University is located in Cedar City, Utah, approximately 170 miles northeast of Las Vegas, Nevada and 250 miles southwest of Salt Lake City, Utah. Cedar City is in Iron County, Utah, just west of Brian Head Cedar Breaks National Monument and the Brian Head Ski Resort. The entrance to Kolob Canyon, the northern extension of Zion National Park, is just 20 miles south of Cedar City. The main entrance of Zion National Park is approximately 60 miles to the south of Cedar City. There are eight designated National Parks, Monuments and Forests and numerous state parks within a 2-hour drive of Cedar City.

Cedar City Map (Reprinted with permission of Cedar City Brian Head Tourism and The Spectrum)

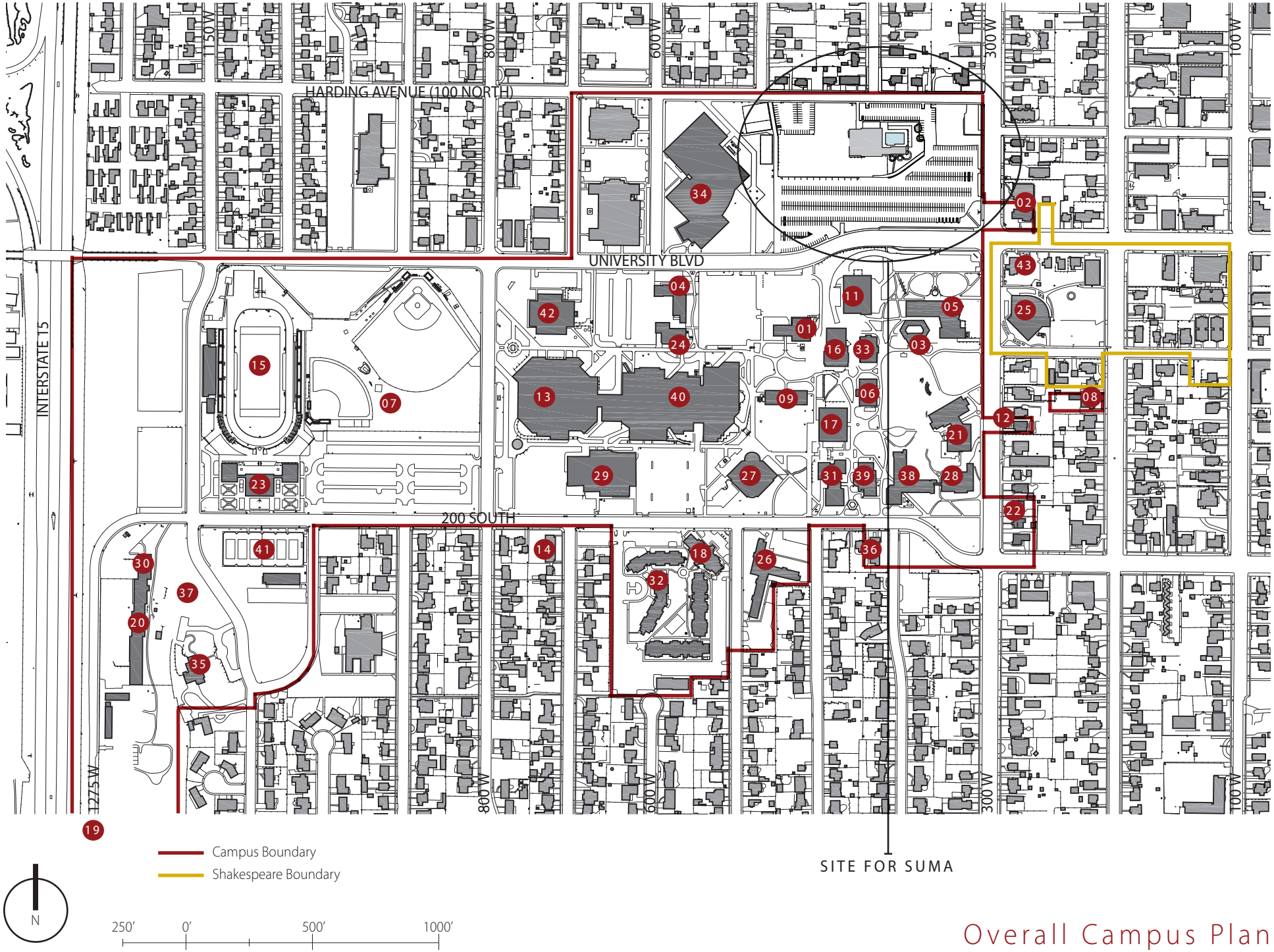


Iron County Map

Cedar City Regional Plans

LIST OF BUILDINGS

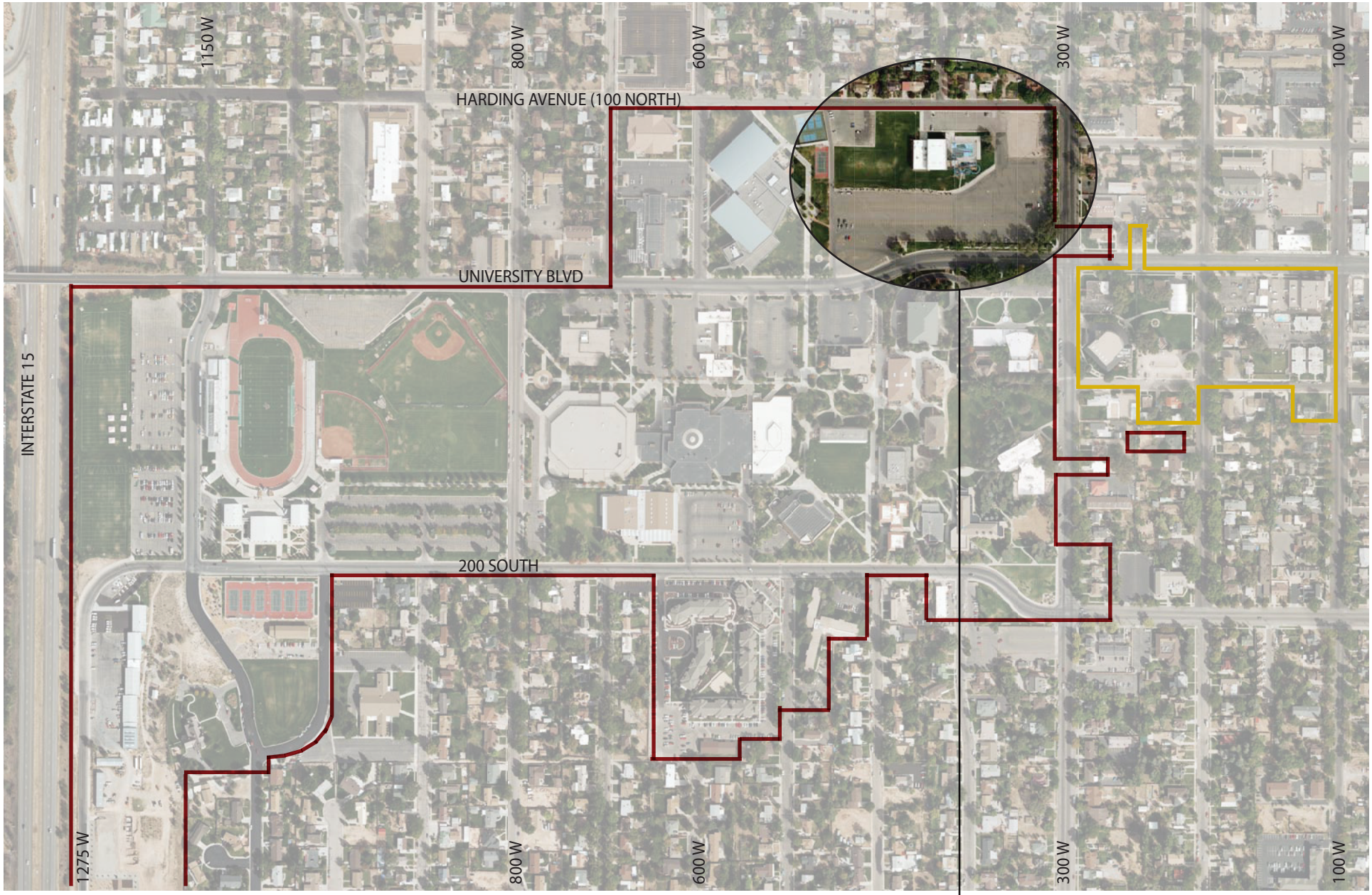
1. AD Bennion Administration Building
2. AL J. Reuben Clark, Jr. Alumni House
3. AM Adam's Memorial Theater
4. AT Automotive Technology
5. AU Auditorium
6. BC R.C. Braithwaite Liberal Arts Center & Braithwaite Fine Arts Gallery
7. BF Baseball/Softball/Soccer Fields
8. BMH Burch Mann House
9. BU Dixie Leavitt Business Building
10. CA Carter Carillon
11. CC R. Haze Hunter Conference Center
12. CDL Child Development Lab
13. CN Centrum Arena
14. CV College View Apartments
15. EC Eccles Coliseum
16. ED Emma Eccles Jones Education Building
17. ELC Electronic Learning Center
18. ELL Eccles Living and Learning Center
19. FM Facilities Management Administration
20. FMS Facilities Management Shops
21. GC General Classroom Building
22. GH Greek Fraternity/Sorority Housing
23. HC J.D. & Alice C. Harris Center
24. HP Heat Plant
25. JT Randall L. Jones Theatre
26. JU Juniper Hall
27. LIB Gerald R. Sherratt Library
28. LS Life Science
29. MC Multipurpose Center
30. MT Motor Pool
31. MU Music Center
32. NH New Residence Hall Phase II
33. OM Old Main
34. PEB J.L. Sorenson Physical Education Building
35. PR President's Residence
36. PT Ponderosa Terrace
37. RCC Rocky Mountain Challenge Course
38. SC Science Center
39. SH South Hall
40. ST Sharwan Smith Student Center
41. TC Tennis Courts
42. TH Engineering & Technology
43. USF Utah Shakespearean Festival Administration



Overall Campus Plan

AERIAL VIEW

The J.L. Sorenson Physical Education Building is located on the same campus block as the SUMA site, several hundred feet to the west. A large parking area and an antiquated swimming facility slated for demolition separate the two uses. Utah Shakespearean Festival facilities are located southeast of the proposed SUMA site and the SUU main campus is located on the block to the southwest. The SUU Alumni House is located east of the SUMA site across N 300 West Street. The neighborhood north of the SUMA site is dominated by single-family homes occupied primarily by renters. The neighborhood to the east is dominated by a mix of low-to-medium density residences closest to the SUMA site, transitioning to mixed use and commercial uses as one proceeds further east toward Main Street and the city core.



Campus Boundary

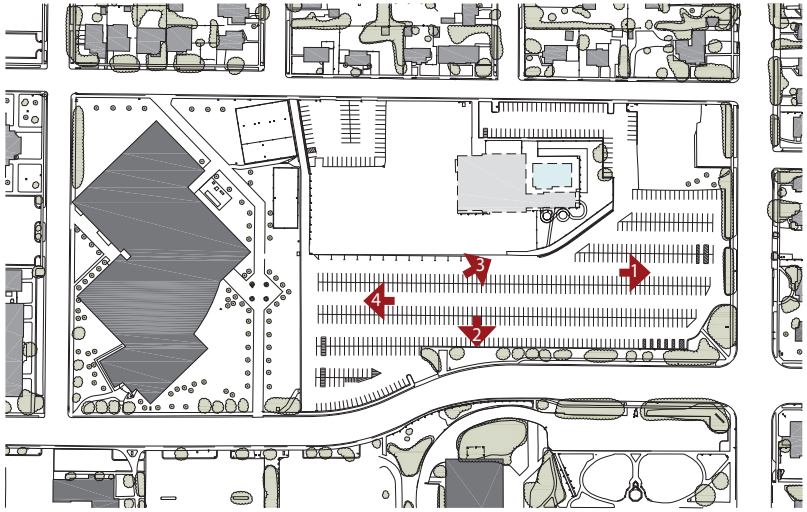
Shakespeare Boundary

N

250′ 0′ 500′ 1000′

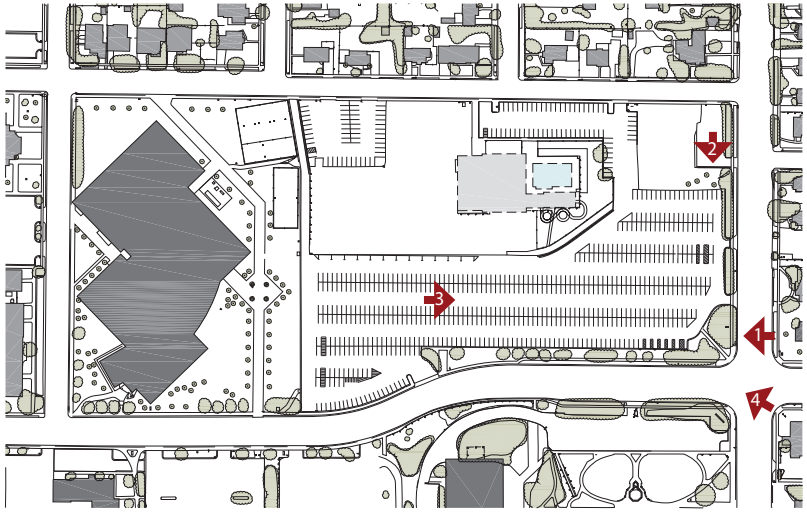
Aerial View

01



Site Views

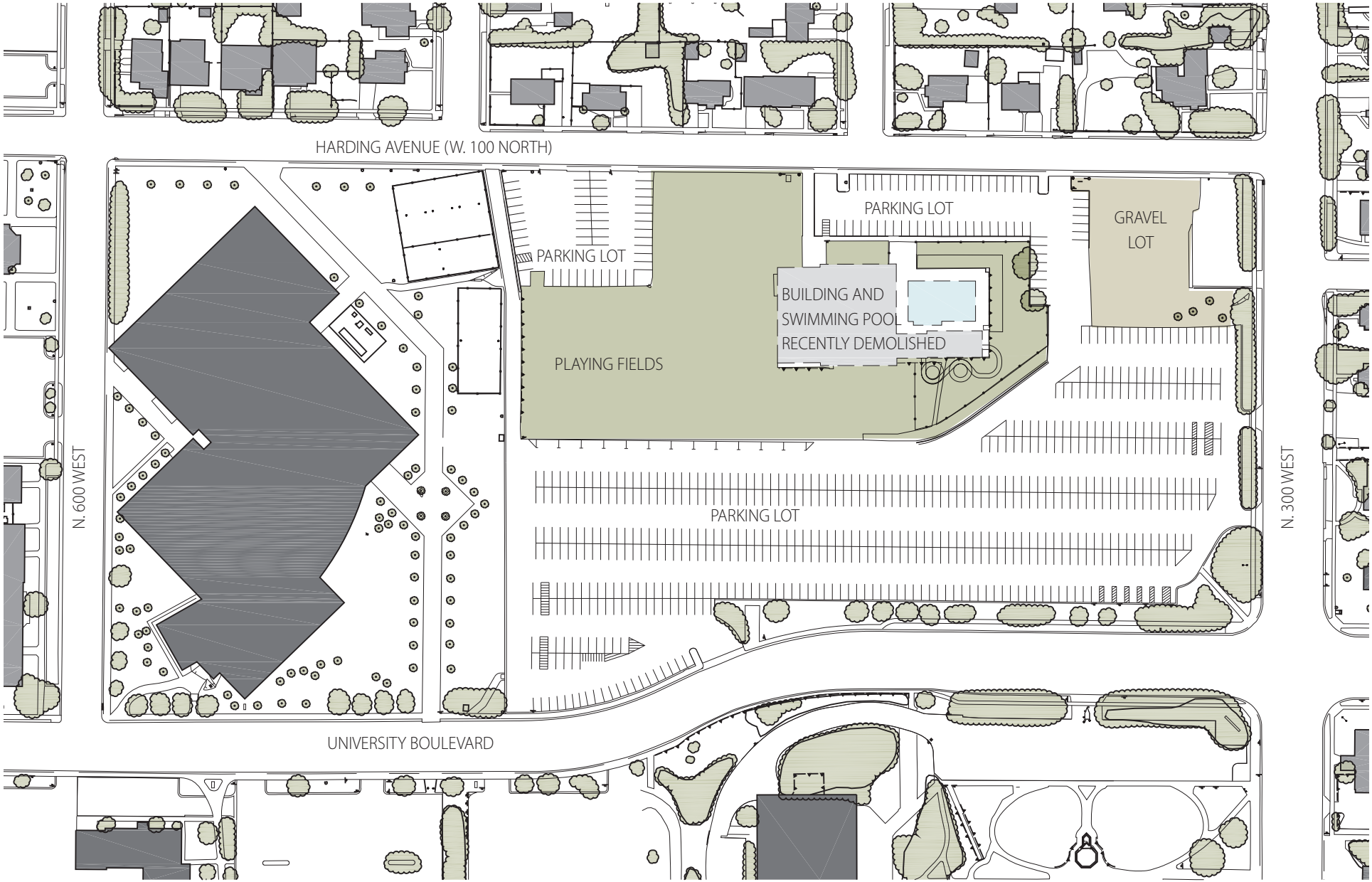
01

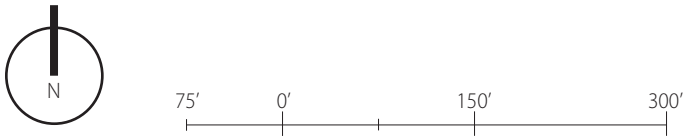


Site Views

EXISTING CONDITIONS SITE PLAN

The SUMA Building will be located on Southern Utah University's campus on the site of an existing parking lot at the northwest corner of University Boulevard (West Center Street) and 300 West Street. There is an existing swimming pool and municipal building on the site that are scheduled to be demolished by the time this program document is completed. Existing playing fields are to be improved as a separate project. The impressive specimen elm tree on the southeast corner of the site will be preserved.

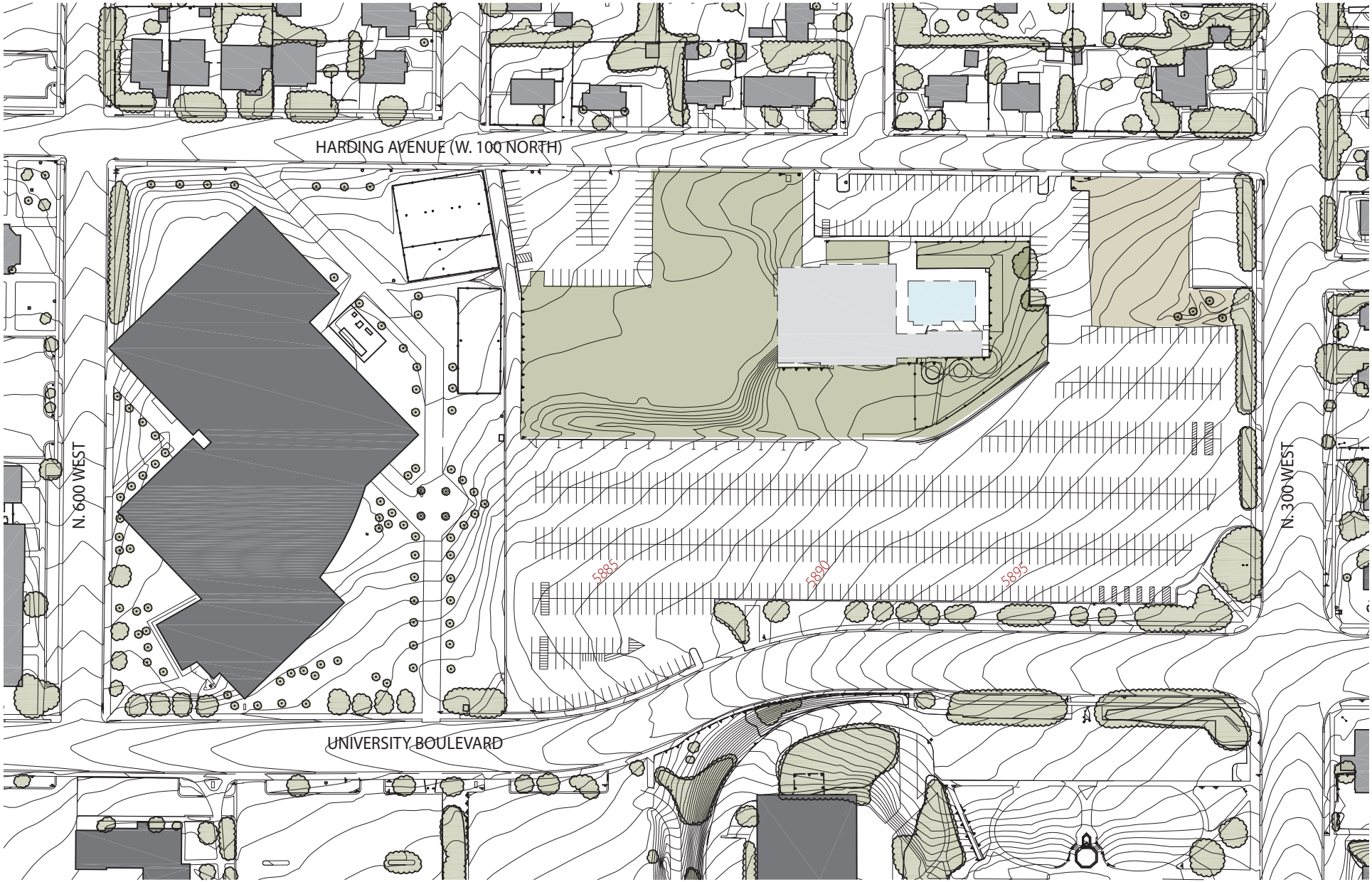


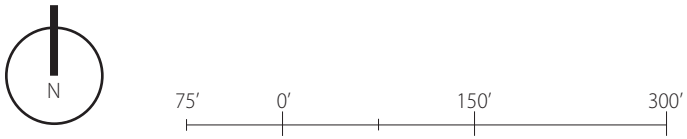


Existing Conditions Site Plan

EXISTING SITE TOPOGRAPHY & TREE PLAN

The site has a gradual slope with the high point of 5901 feet elevation at the southeast corner sloping down to 5890 feet elevation at the northwest corner. This change in grade, diagonally across the site, may allow for a lower level to be included in the building design that takes advantage of the natural grade.

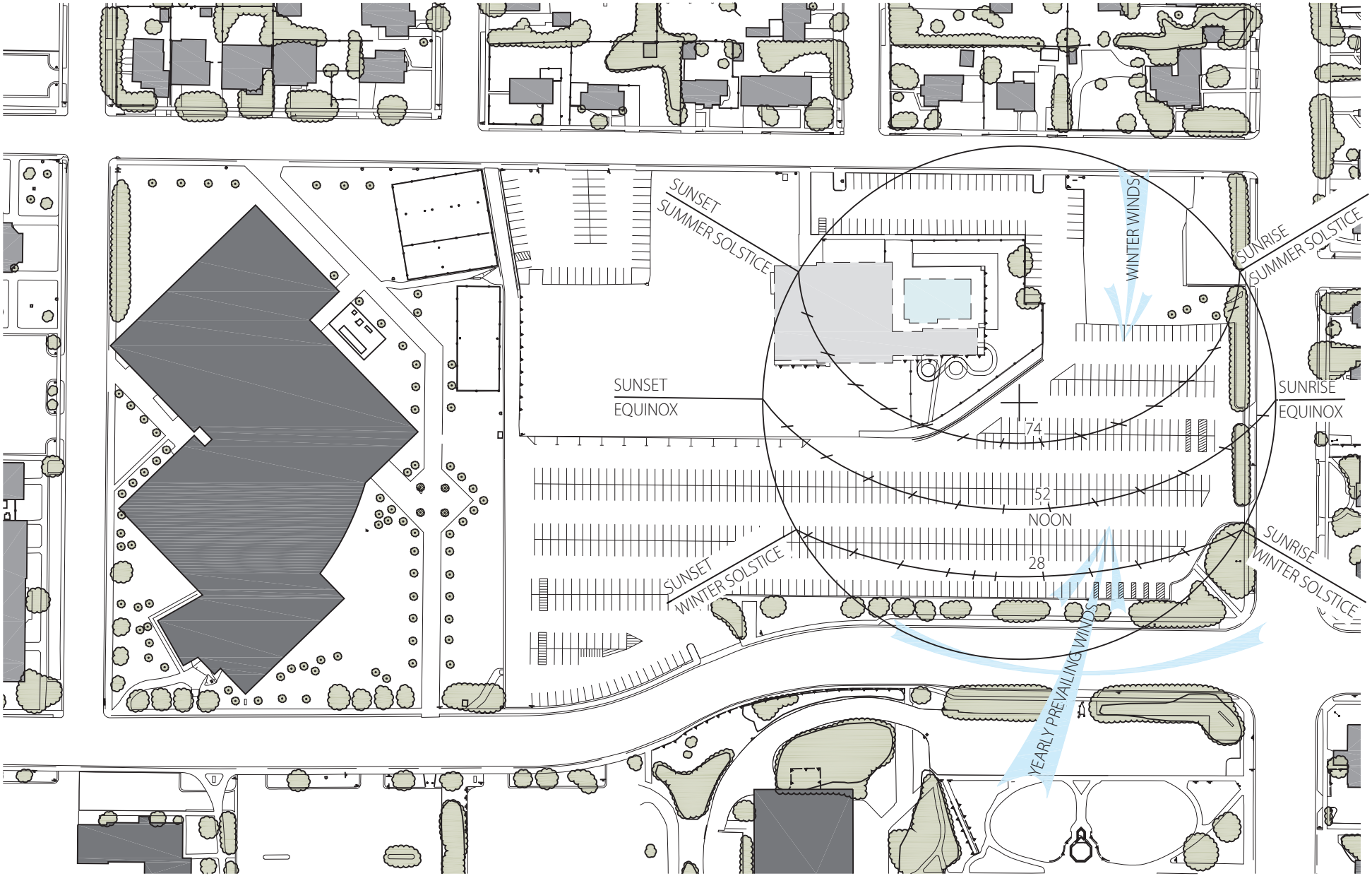




Existing Site Topography & Tree Plan

SITE CLIMATE

The climate of this site (Cedar City) ranges from winter low temperatures of 44 degrees F to summer highs of 87 degrees F. In general, the prevailing winds come from the south-southwest, however, winter winds can come in strong from the north and occasional winds may come from the mountains to the east or plains to the west. During several months of the year, the winds from the north can create very cold conditions at the site in the winter. These conditions require exterior spaces to be protected from extreme conditions of the area.



N

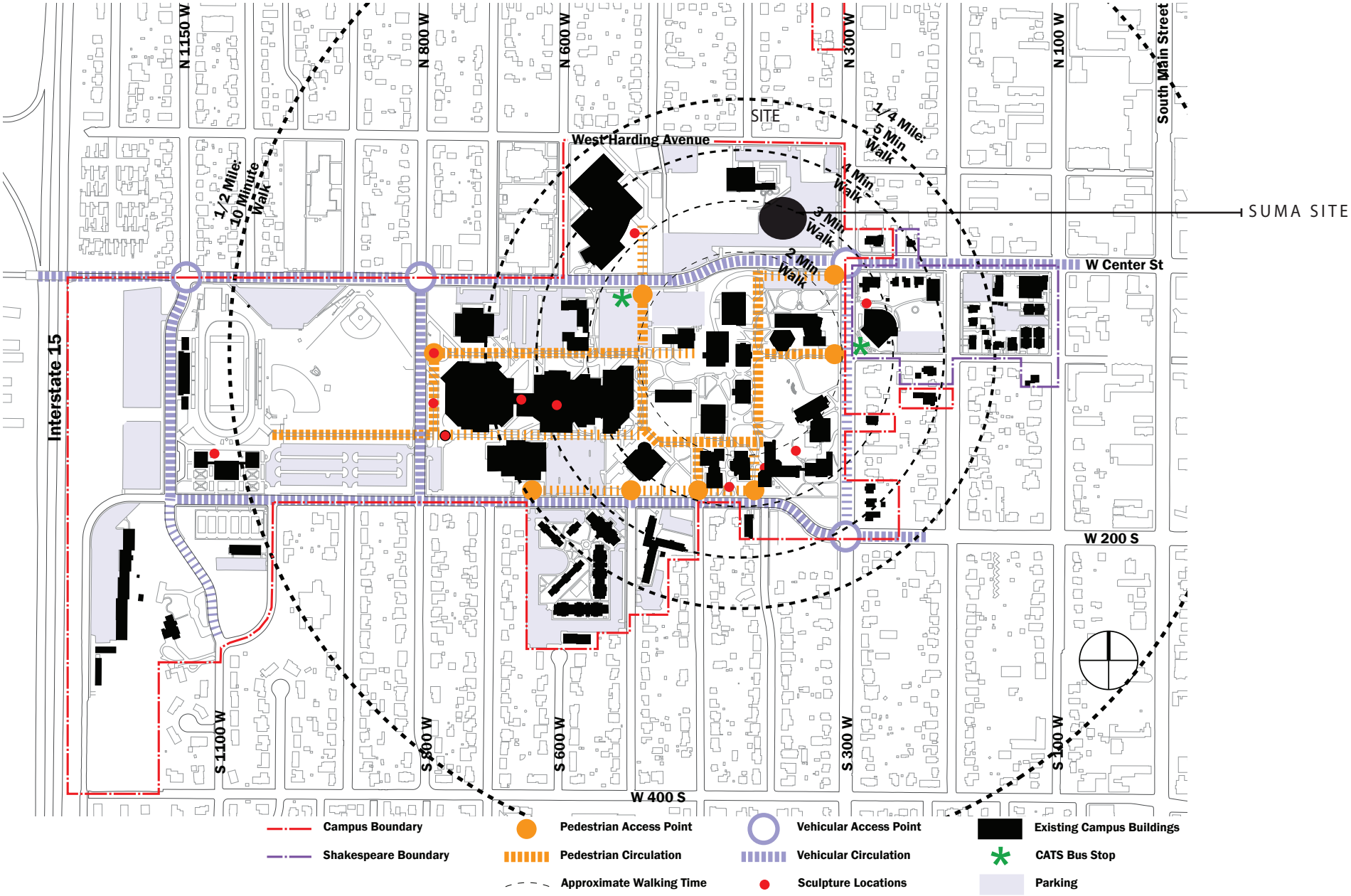
75′ 0′ 150′ 300′

- Average High Summer Temperature: 87 F
- Average Low Winter Temperature: 44 F
- Average Annual Rain Fall: 10.7″
- Average Annual Snow Fall: 45.4″

Site Climate

CAMPUS PEDESTRIAN AND VEHICULAR CIRCULATION STUDY

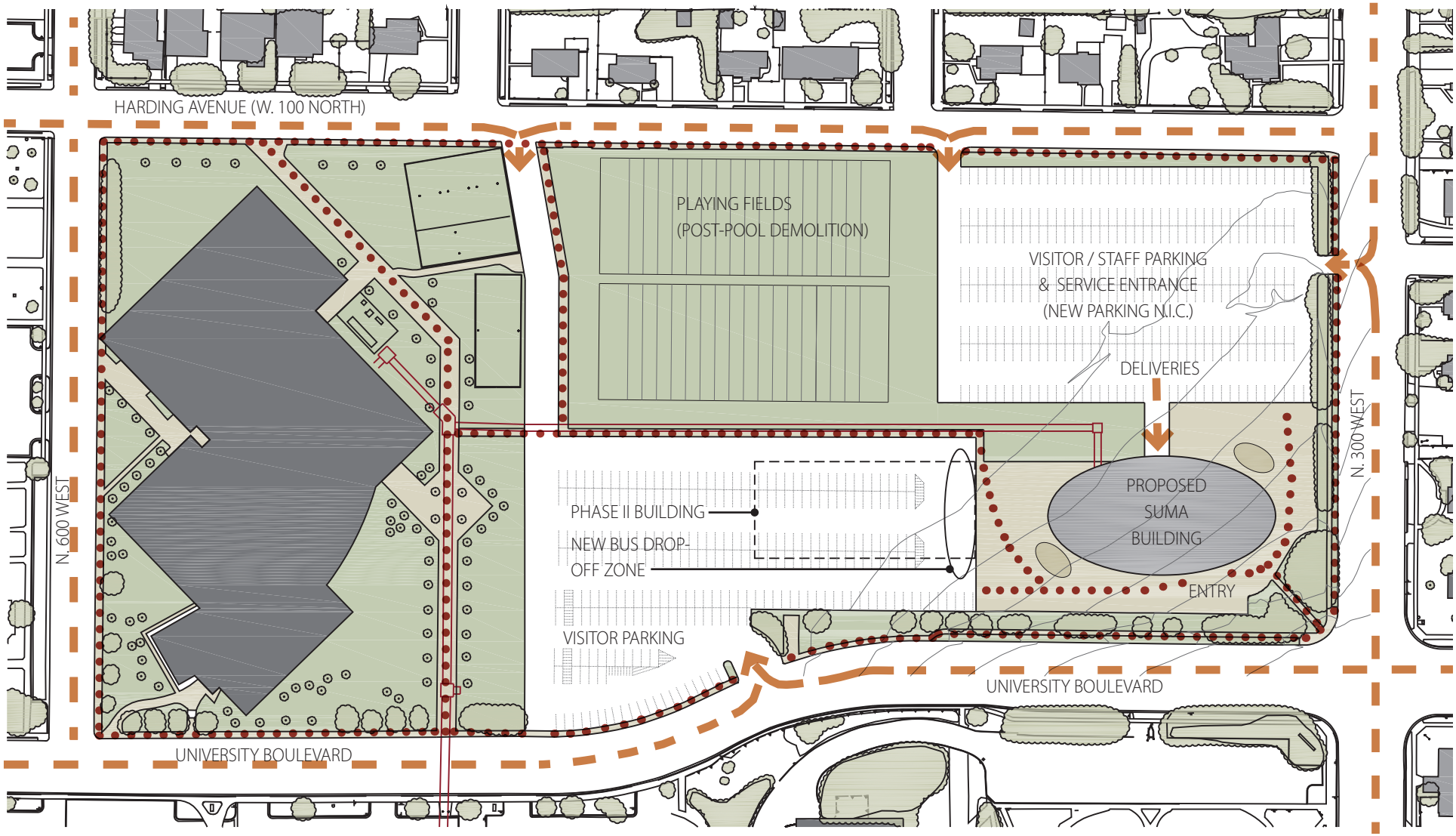
The SUU campus is relatively compact, covering an area of approximately 130 acres. All of the University's academic buildings lie within ½-mile of each other, or less than a 10-minute walk. The SUMA site is within a 3-4 minute walk of Old Main at the center of campus.



Campus Pedestrian and Vehicular Circulation Study

SITE PEDESTRIAN AND VEHICULAR CIRCULATION STUDY

The existing pedestrian pathways surrounding the SUMA site should be linked to the SUMA entry plaza by new pathways as needed. Vehicular traffic to the site will remain along University Boulevard with minor improvements to the existing west parking lot as needed to make a smooth transition to the SUMA entry plaza and to provide a new bus drop-off adjacent to the plaza. The future north parking lot improvements (not a part of the SUMA project) will provide additional vehicular access to the site from 300 West and Harding Avenue. Bicycle access should be provided along all pedestrian corridors along with secure bicycle storage adjacent to the new SUMA Building entrance.



VEHICULAR CIRCULATION

PEDESTRIAN CIRCULATION

N

75′ 0′ 150′ 300′

Site Pedestrian and Vehicular Circulation Study

FIRE PROTECTION

The SUMA site is supported by the existing Cedar City water system. Water line sizes and approximate flow information is as follows: (Flow data was provided by the Cedar City Fire Department).

- University Boulevard (Center Street): 4" dia. ductile iron water line. 1,200 gpm.
- 300 West Street (to the East): 4" dia. ductile iron water line. 1,658 gpm.
- Harding Ave. (to the North): 6" dia. ductile iron water line. 1,640 gpm.

Fire Protection service requires a minimum flow rate of 1,500 gpm. The proposed building will be serviced by a new 4" or 6" diameter Fire Protection line connected to the existing water line in 300 West Street. The existing water line in 300 West Street may need to be upgraded to an 8" diameter water line along the project frontage at the time of construction.

No new site fire hydrants are anticipated.

Cedar City Fire Department contact information:
Mike Phillips, Fire Marshall
PH: 435-586-2964

POTABLE WATER

Potable Water service to the new building will be serviced by a new culinary water line connected to the water line in 300 West Street as described in the Fire Protection section above.

A new water meter will be installed on the service line per Cedar City Water Division specifications and impact fees for the new connection will be required.

Cedar City Water Division contact information:
Robbie Mitchell, Water Superintendent
PH: 435-586-2968

FUTURE WATER LOOP

A future water line loop would connect the existing 6" dia. fire hydrant line located at the Eastern side of the Physical Education building to the West of the project to the water line in 300 West Street. This looped system would run adjacent to the proposed underground utility tunnel.

The future water line loop is not a part of this project.

SANITARY SEWER / WASTE WATER

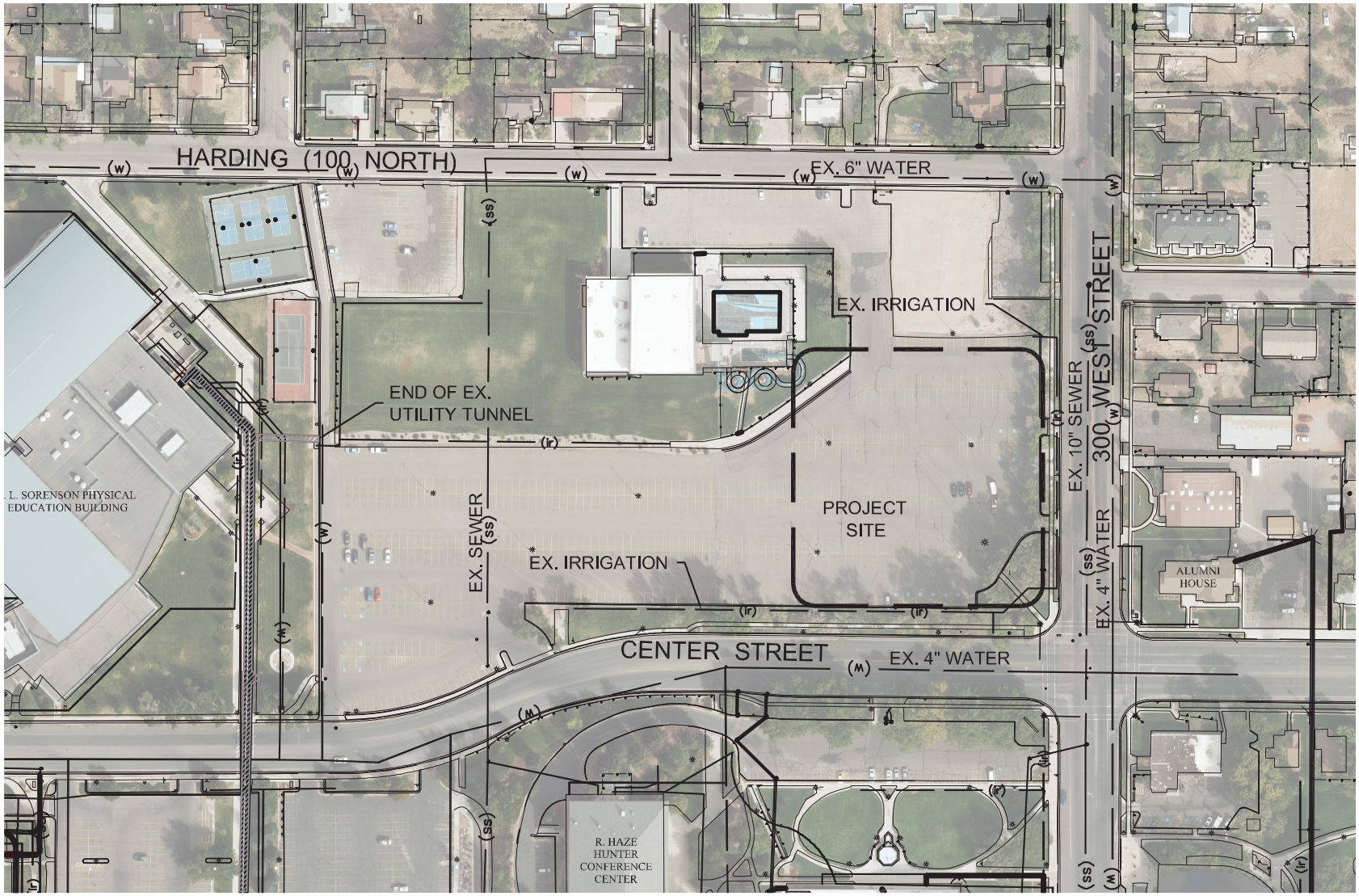
The SUMA project will be serviced by a new 4" or 6" diameter PVC sanitary sewer lateral line connected to an existing 10" diameter sewer main in the center of 300 West Street.

It is not anticipated that the SUMA project will include a food preparation component and the sewer service will not require a grease interceptor or sampling manhole.

Cedar City Wastewater Division
Darrell Olmstead, Wastewater Superintendent
PH: 435-867-9426

NATURAL GAS

The Southern Utah University campus has a master metered natural gas system. If needed, a new natural gas connection will be made at the South side of Center Street approximately 1,000 feet to the west of the project site.



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75′ 0′ 150′ 300′

Existing Utilities Site Plan

UTILITY TUNNEL

The University provides steam, condensate, data, telecom and other utilities to the buildings on campus in an existing buried concrete tunnel system. The existing utility tunnel at the east side of the Physical Education building will be extended approximately 700 feet east to the SUMA building.

The tunnel will be constructed with approximately 8'x8' rectangular precast sections or cast-in-place concrete and will include one manhole access point at the midpoint of the new tunnel section.

SITE GRADING & DRAINAGE

The SUMA project site is mostly asphalt paved and does not have a piped storm drain system. The site slopes from the southeast corner down to the northwest.

Collapsible soils are known to exist at the Southern Utah University Campus. Design and site construction must include measures to minimize surface waters from infiltrating the soils around building footings and foundations.

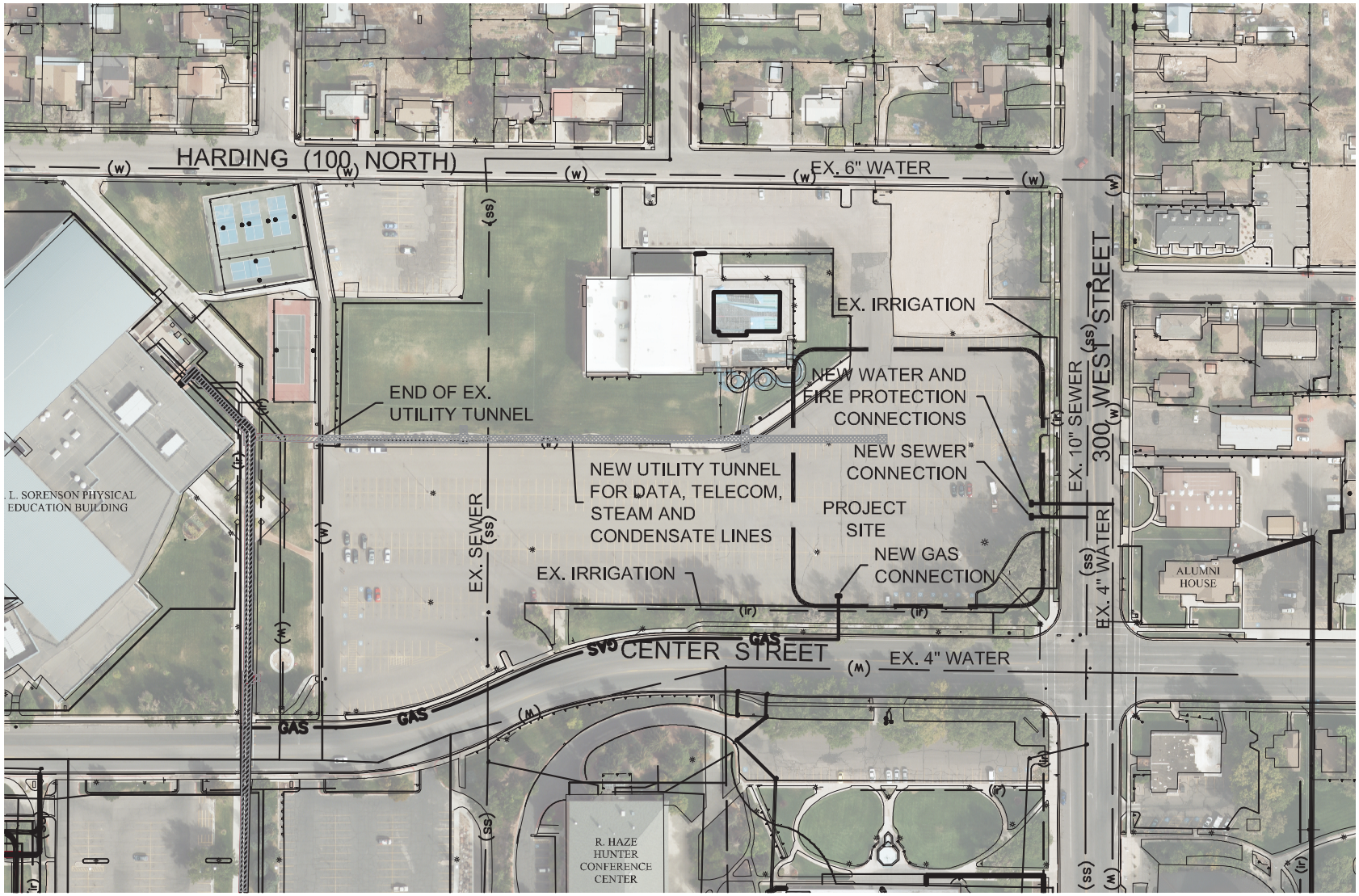
Grading around the proposed building will be designed to slope away from the building a minimum of ten horizontal feet. Roof down spouts will need to extend out away from the building.

Minimal new paving is included in the project. Asphalt patching, concrete paving, crushed stone and paver systems may be included around the new building and will be designed to direct storm water runoff away from the new building.

Landscaped spaces will be utilized to treat and collect storm water runoff from the roof and pedestrian areas.

SUSTAINABILITY PRINCIPLES

- Construction Activity Pollution Prevention: An erosion control plan will be included in the design documents.
- Storm Water Design, Quantity Control: Storm water run-off from the new roof and plaza/pedestrian areas will be directed to landscaped and infiltration areas away from the building structure to limit the quantity of runoff to pre-development conditions.
- Storm Water Design, Quality Control: Storm water run-off from the new roof and plaza/pedestrian areas will be directed to landscaped areas away from the building structure to an infiltration system. Infiltration provides treatment of runoff water.



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75′ 0′ 150′ 300′

Proposed Utility Site Plan

POWER SERVICE TO NEW FACILITY

The new facilities shall be designed for 26 watts per square foot minimum.

The IECC and ASHRAE 90.1 rules required lighting loads will not exceed 1.1 watts per square foot using entire building method. Display lighting for exhibits in galleries, museums, and monuments are exempted out of the calculation according to IECC 505.5.1 Exception 3, but must be added as actual load to the watts/square foot requirements as well as calculated in the service calculations according to the NEC.

SUU requires spare capacity of 50% calculated load:

LOADS	CONNECTED LOAD	DESIGN W/SF SPARE 30%
GENERAL LIGHTING	1.1 (or less)	1.65
GALLERY LIGHTING	5 (or less)	7.5
RECEPTACLES	1.5	2.25
HVAC	10.4	15.6
ELEVATORS	1	1.5
MISC	1	1.5
TOTAL	20 W/SF	30 W/SF

The designer may choose either a 277/480 volt service, or 120/208 volt service, or both. If gallery lighting is generally 277 volt, the 277/480 volt service is desireable as it will be economical to operate with minimal step-down transformer load. However, if gallery lighting is traditional incandescent, 120 volt lighting will dominate with traditional plugload, and therefore only HVAC can utilize 480 volt power. In this case it may be economical to run the service at a larger amperage 120/208 volt system. Two service transformers are an option, one at 480, and one at 277, which avoids dual losses of step-down transformers and could be a way to keep the building sustainable.

The service can originate from a switch near the J.L. Sorenson Physical Education Building. It is the intent of this project that all infrastructure to feed future buildings in this new quadrant on campus shall be planned for, therefore a new utility tunnel will be extended. The power will remain outside of the utility tunnel, but may share the dig. Multiple 4 inch conduits are required for future spare ducts, minimum of (4) 4 inch conduits along main duct pathway.

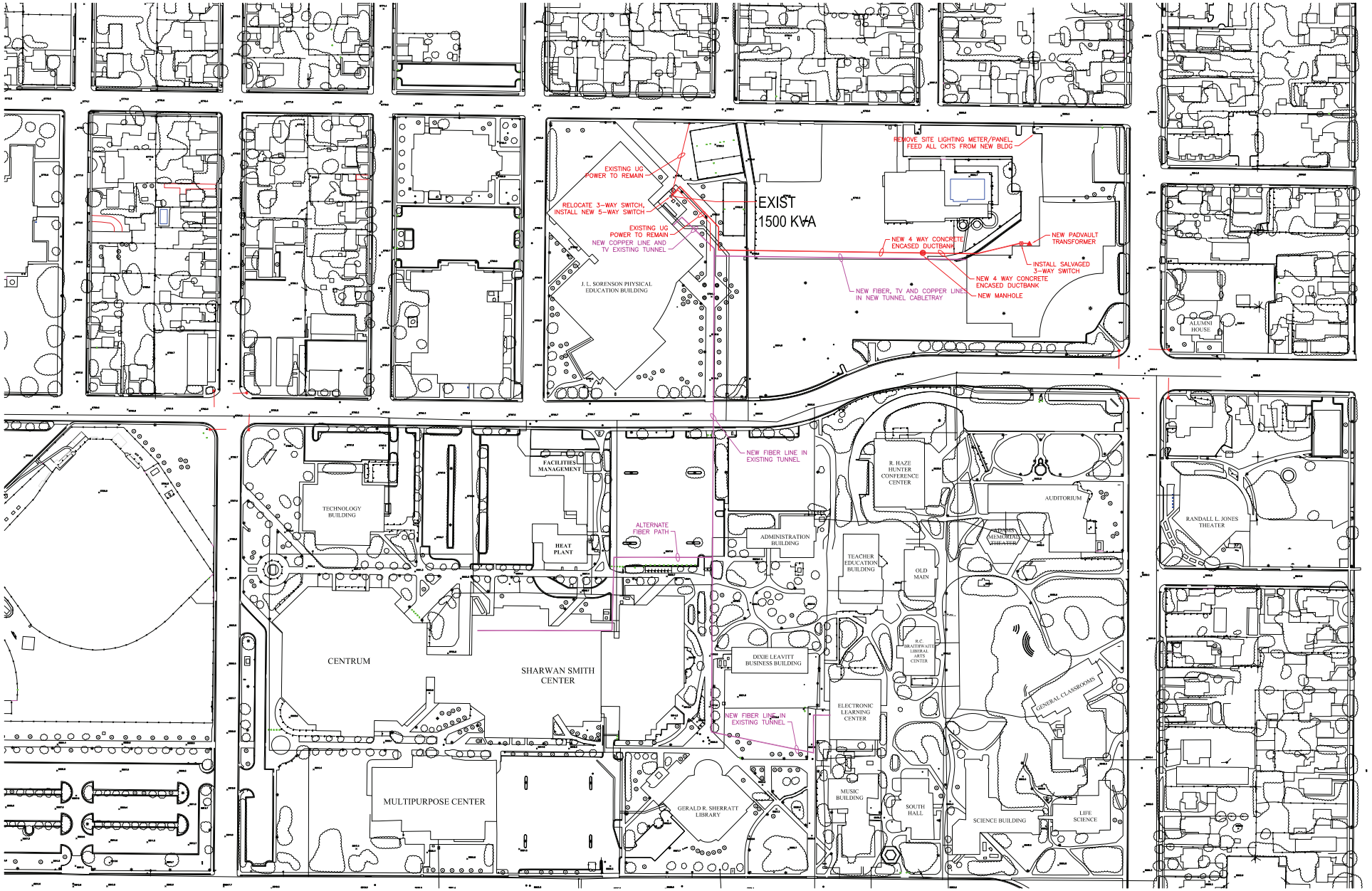
The current 3 way G&W VFI switch located at the PE Building should be replaced with a new 5 way switch, the 3 way will be relocated to the location of the new building service.

A new 5-way vault mounted vacuum fault interrupter (VFI) switch, with solid dielectric medium, is preferred over an oil switch. The procurement of such switches must be discussed with the DFCM representative and follow state purchasing guidelines as competition of both styles is limited. Bidding two styles of switches against each other is not recommended, as there is a major cost difference between the two styles and oil would automatically win. Please note that SF6 gas switches and fused switches are not acceptable.

A new transformer(s) should be installed to serve the facility. The transformers must be screened from the public view. If located near the generator, a concrete or masonry "blast wall" shall screen the generator from any possible arc flash of the transformer.

The designer shall include a selective coordination study for the medium voltage service, to determine the overcurrent protection settings at the vacuum fault interrupter. The contractor shall adjust the overcurrent protection settings as part of the commissioning process.

Conduits running from the manholes to the building switch, and from the switch to the transformer shall be 4 inch PVC, with 10 feet of PVC wrapped rigid conduit where entering the manhole, penetrating building foundation wall, or exiting from underslab to transformer. Where medium voltage is installed inside the building, conduit shall be rigid, 5 inch size conduit, painted red and labeled according to the NEC. Provide at least one spare conduit in all new runs.



N

150' 0' 300' 600'

Proposed Electrical Site Plan

ON SITE RENEWABLE ENERGY

It is desired to have photovoltaic system, either stand alone panels mounted on the roof, or a system integrated into the building envelope such as integral glass systems, thin film systems, or other system compatible with the building. Stand alone panels are currently the most efficient photovoltaic technology in terms of watts per square foot of panel systems.

Any photovoltaic system installed on the roof shall consider fall protection if within 10 feet of the edge of the roof, visual impact, roof maintenance and repair, wind loading, structural loading, impact of snow, and other factors. Careful coordination with the campus will be required to ensure facilities agrees with the concepts. Structural elements penetrating the roof to hold the panels are preferred instead of ballasted systems.

There are large trees to the south of the construction site. Care shall be taken so that these trees do not impact the photovoltaic system during winter months when the sun is low in the sky. This is particularly important if photovoltaic systems are used in south facing glass or in single story construction on the roof.

The amount of on-site renewable energy is heavily dependent on available budget and available locations on the building to place panels. The design team shall strive to maximize the amount of renewable energy used in balance with the project budget. LEED points should be anticipated from this effort.

Local Site lighting in the parking areas north and west of the building site shall be relocated to feed from this building and the power company service north of the construction site shall be demolished. For all site lighting, a tie to the Building Automation System shall ensure the BAS controls the lights on and off. This can be accomplished through a relay panel communication protocol, where the relay panel on board system can take over if the communication is lost with the BAS.

Site lighting shall consider LED Solid State systems. The campus is experimenting with an installation at the Gibson Science Center, which replaces retrofitted compact fluorescent systems. The compact fluorescent systems currently installed on campus have poor operation

SUSTAINABLE PRINCIPALS

It is desired that where economically feasible, sustainable practices and design shall be employed. The state will require this to be LEED silver, at a minimum. Many of the above system descriptions already use energy efficient design practices. The designer shall meet with the DFCM energy coordinator and meet all requirements of the DFCM energy standard.

Electrical designer shall include all commissioning requirements in the electrical specifications required for measurement and verification.

The lighting design is targeting 20-25% better than code for lighting energy density outside of the museum gallery lighting space.

As stated previously there may be daylighting controls within some of the spaces adjacent to exterior windows and clerestories to take advantage of free and efficient daylight when available; although, it is unlikely that sufficient daylighting controls will be provided to earn the LEED credit for daylighting. The lighting layouts and fixture selections will aid in reducing light pollution from interior light sources as well as aid in reducing sky glow from exterior sources.

TELECOMMUNICATIONS SERVICE TO NEW FACILITY

The contractor shall provide all infrastructure, including conduit, tray, and cabling, to extend services to the new building. The cable work will NOT be provided by the owner.

The data fiber optic service to the new building shall be obtained from from either the Electronic Learning Facility, or the Sharwan Smith Student Center. Tunnel access is available from both facilities to the PE Building. Extend fiber through the new tunnel to the new Art Museum.

Analog phone lines shall be extended from the PE building, where many lines are unused, through to the Art Museum. A minimum of 25 pair is required.

Cable TV is desired in the facility. This can be extended with an amplifier from the PE building through the tunnel system.

CODE BLUE PHONE SYSTEM

Provide a centrally located Code blue telephone pedestal for emergency access for students, faculty and guests in the immediate vicinity of the building. The site shall be highly visible and accessible along major pedestrian pathways. Locating it between the parking areas and the building, or between the parking areas and the crosswalks to the Shakespearean festival area is desired. The contract shall purchase the phone pedestal and provide required wiring and telephone access. Wireless systems are not desired.

CABLE TV

A cable TV broadband RF system is anticipated throughout the facility, including to all instructional labs, classrooms, conferences, and private offices. Provide appropriate coaxial cable, amplifiers, taps, and other equipment for a complete system.

SECURITY NARRATIVE

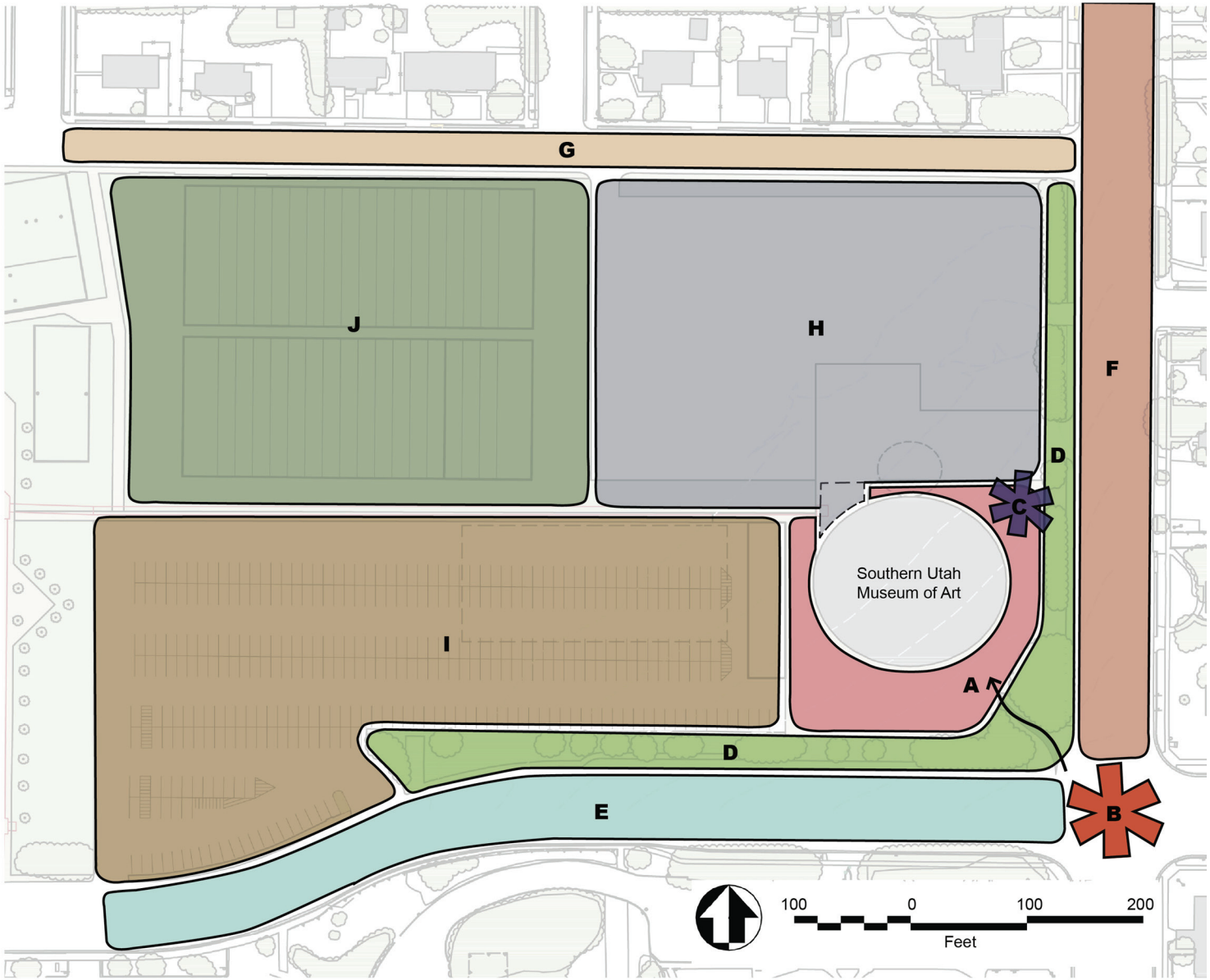
A highly visible perimeter should be maintained around the building, accomplished with proper lighting and landscape design that creates a secure environment. Due to exposure and access of the site to a major intersection and the Shakespearean Festival, transient traffic creates a concern for tailgating through secure doorways. Access doors shall be located outside of the immediate transient traffic to help avoid tailgating.

Interior and exterior lighting in public areas shall be vandal and tamper resistant. Lighting levels shall be enough to deter crime, but yet avoid annoying adjacent traffic, pedestrians and adjacent properties.

LANDSCAPE ZONES

The SUMA site is divided into ten distinct landscape zones. The specific issues, needs and design principles to be applied for each are described in Section 3 of this program document.

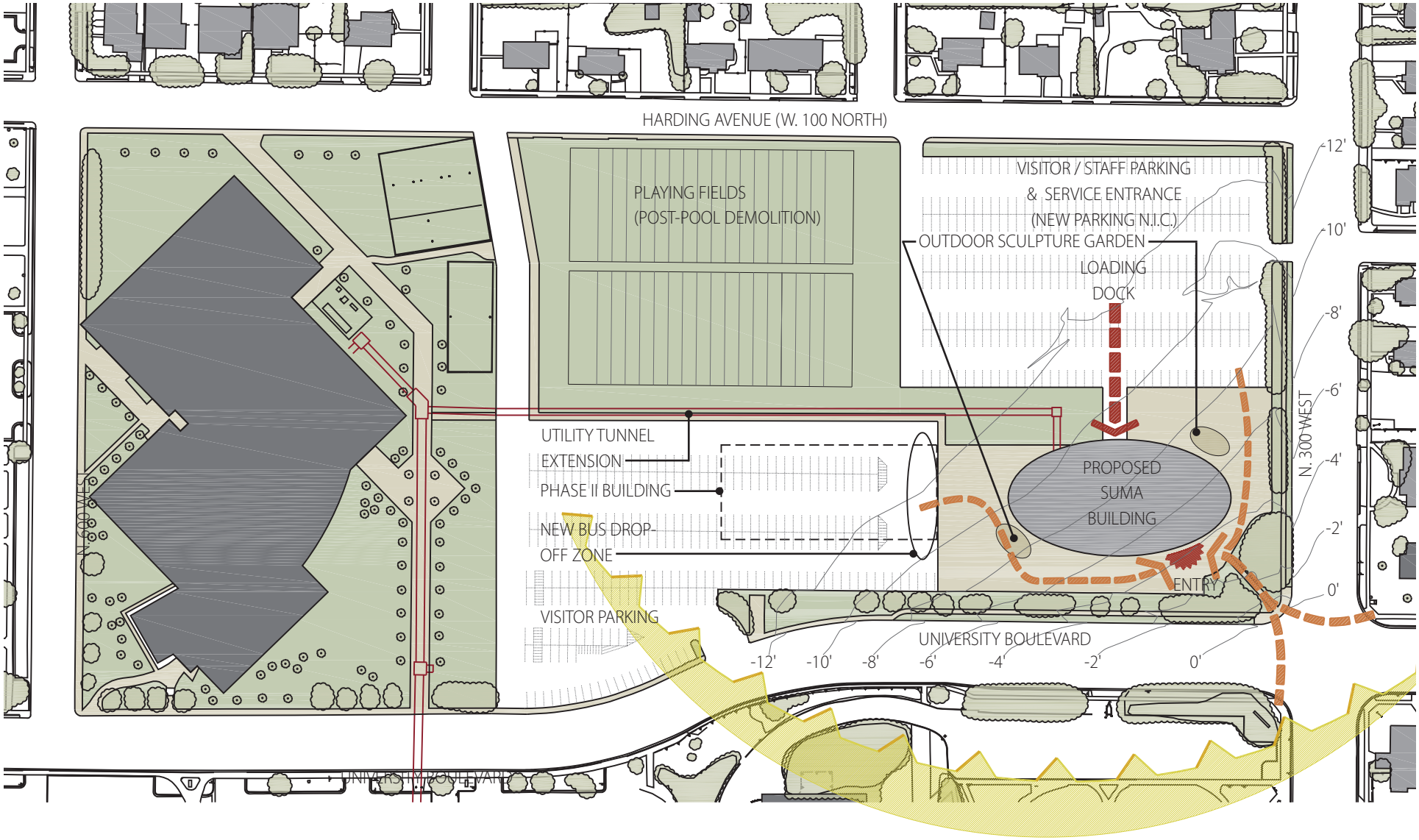
- **A** Museum Plaza & Sculpture Garden
- **B** Community Connection Node
- **C** Visitor Connection Node
- **D** Green Transition
- **E** University Boulevard Frontage
- **F** N. 300 West Frontage
- **G** Harding Avenue Frontage
- **H** North Parking and Serivce Area
- **I** West Parking Area
- **J** Playing Fields



Landscape Zones

SITE FUNCTIONAL STUDY

The southeast corner of the site has been identified as the preferred location for the SUMA Building. This location will allow the building to have a strong connection to the SUU campus and Shakespearean Festival grounds, and will help reinforce the corner of 300 West and University Boulevard as the "gateway" to the SUU campus. The preferred main entrance location of the SUMA Building is closest to the southeast corner of the site to allow equal access by visitors arriving by foot, bicycle, car or bus. The plaza surrounding the SUMA Building will incorporate informal outdoor sculpture gardens that will help lead visitors to the entry. Building orientation should be consistent with sustainable practices, accounting for solar conditions to optimize daylight harvesting and minimizing glare and thermal gain.



N

75' 0' 150' 300'

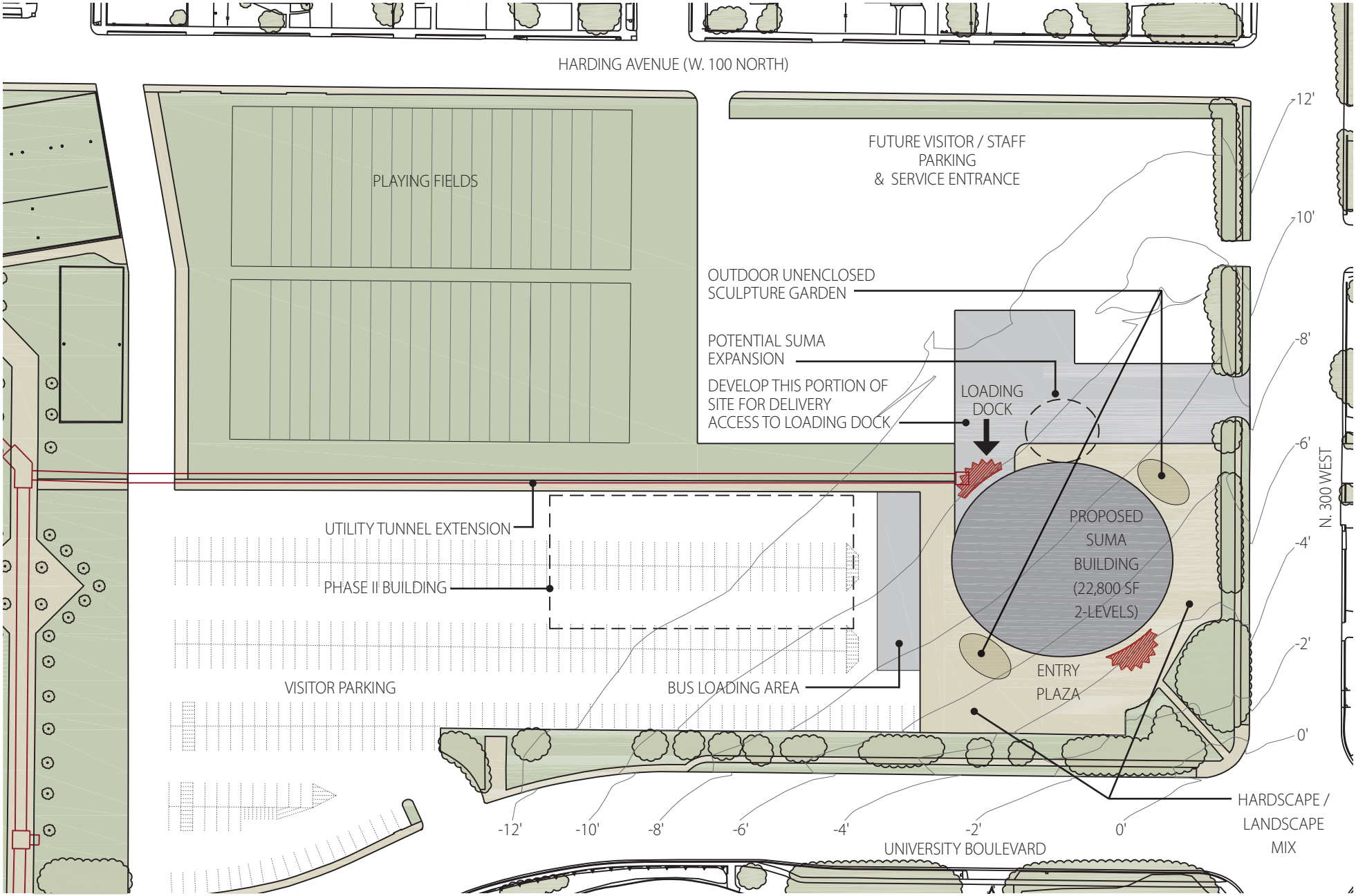
Site Functional Study

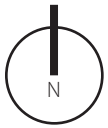
Selected Site Option Plan Summary

02.4

PRINCIPLES AND ADVANTAGES

- Strong connection to Southern Utah University and the Community of Cedar City
- Emphasizes and reinforces the "University Gateway" at the corner of 300 West and University Boulevard.
- Parking, access and service areas located in center of block
- Main entrance at the corner of 300 West and University Boulevard
- Galleries and collections located at the north to allow some use of natural light while minimizing UV exposure.
- Public spaces and Education located at the south, providing opportunity for sustainable day light practice.
- Straight connection to existing utilities tunnel (no bends required).
- Existing west parking lot can be used to help satisfy the parking requirements for the SUMA building with only minor improvements.
- Allows existing pedestrian pathways to be integrated into the new plaza design.
- Allows for ample outdoor gathering space around the east, south and west sides of the proposed buildings.
- Provides visual connection from both the west and future north parking areas to the main entrance.
- Provides a bus drop-off area adjacent to the proposed building in the west parking area. After the future north parking area is developed completely, separate entry progression can be made by groups and individuals, keeping congestion to a minimum.
- Maintains the existing green space to the northwest of the proposed building site for future development into playing fields.
- Keeps the loading area away from the main entrance and as far from 300 West as possible which will help minimize view of it.
- Future expansion of galleries to the north can be made with minimal disruption to original galleries and spaces.
- Phase II performing arts building can have a hard or soft connection to the SUMA building with connection to the SUMA outdoor plaza, potential to share loading area access, and access to both parking areas.





Selected Site Option

Building Requirements

03

architectural

IDENTITY, HISTORY AND GROWTH, AND PROJECT JUSTIFICATION

Southern Utah's wild landscape is revered globally, and has lured outdoor enthusiasts, explorers and amateur artists since the beginning of its settlement in the 1800's. In 1897, Southern Utah University (SUU), was founded in Cedar City, Utah, just north of Zion National Park and west of Bryce Canyon National Park and Cedar Breaks National Monument. Inspired by this natural scenery, SUU and the region's vibrant art community actively support and engage the Arts. The community welcomes thousands of visitors from Utah and around the world, annually hosting the award-winning Shakespearean Festival, on grounds adjacent to SUU's campus. In response tremendous number of visitors, SUU established the "Sculpture Stroll" in 2004 as a walking tour of the campus artwork, highlighting more than a dozen traditional and modern sculptures by national and regional artists.

With more than 7,000 students enrolled, SUU has evolved significantly over the past century, and remains committed to academic excellence, community and social responsibility, and involvement and personal growth. Today, SUU's College of Performing and Visual Arts departments for Art and Design, Music, Theatre Arts/Dance, and Master of Fine Arts in Arts Administration Graduate Studies, currently enroll over 250 students.

Arising from the need to inventory and establish a local museum collection, the Friend's of the Braithwaite Gallery was established in 1976. For nearly 35 years, The Braithwaite has served the University and community as a resource center for visual arts, mounting exhibits, offering related programs, and preserving its collection of fine art. Recently, The Braithwaite worked with renowned local artist Jim Jones' work to produce a retrospective of his work. At Jones' death in 2009, his entire estate and copyright to all his work was gifted to SUU.

Since its establishment, The Braithwaite has operated in an 1,100 Square-Foot make-shift gallery and collections space on the ground floor of the Liberal Arts Center building constructed in 1899. With the growth of the collection over the years, the gallery is significantly undersized, and limited in its ability to continue to grow. Additionally, the building's mechanical and electrical systems are obsolete and the environmental conditions are no longer suitable for the art collections.

In response to the need for appropriate gallery and collection space, SUU and the art community established the Southern Utah Museum of Art (SUMA) project in 2009. With the recent gift of local artist Jim Jones' work, and a desire to establish its Arts Administration program as the first to provide a professional art museum operated by graduate students, all stakeholders are committed to moving the SUMA project forward, to become an accredited, significant art museum for the campus and region.

BUILDING VISION AND PLANNING

In order to capitalize on an well-established creative economy, and the solidify its role at the forefront of arts and education in Utah and the surrounding region, SUU needs a purpose-built art museum with cutting-edge galleries and environmentally secure collections and conservation spaces. Along with public gathering spaces, and educational spaces, such a destination facility will strengthen existing programs, allow for new programs, and will ultimately provide a memorable experience for students, staff, administrators, faculty, and visitors alike.

Based on preliminary studies, SUU's President Benson, along with the Program Steering committee, and project oversight from the State of Utah Division of Facilities and Construction Management (DFCM), began formal efforts for programming SUMA in the Spring of 2010. In May 2010, ajc architects and museum consultant Ann Frank Farrington were contracted to assist in the development of this document, including a Program of Spaces, Site Analysis, Building Requirements (Design Criteria), Individual Space Outline, and Construction Cost Estimate for the proposed building. Early in programming, ajc facilitated a Vision Workshop at SUU in Cedar City with the SUMA steering committee and interested faculty, students, and community members. The participants identified the vision and mission for the project:

VISION

SUMA will be a landmark place for both the University and the Community. SUMA will be welcoming, accessible and memorable to all who visit. SUMA should engage, inspire, enlighten and provide a deeper connection than one would have if this institution did not exist. SUMA will "knock your socks off".

SUMA WILL……

. . . . be an icon for the region, SUU and the Iron County community.

. . . . propel the university and the community forward culturally.

. . . . be a vitally important component to the education of SUU students, in particular the Arts Administration students, providing an opportunity to study, learn and practice in a world class art museum.

. . . . be the only student-run museum in the country.

. . . . be a vibrant museum—driven by passion.

. . . . be inviting to all groups of people—a place where everyone "wants to go."

. . . . be an architectural gem, representing the culture and materials of southern Utah.

. . . . be an example in sustainable design.

. . . . be the gateway to SUU.

MISSION

SUMA's mission is to educate, collect, protect, preserve, exhibit, and interpret. The collections will engage and educate, relate to the region, broaden the student's/patron's/viewer's/participant's horizons, be an active community resource.

PROJECT SUMMARY

SUMA will be a "jewel" at the northern gateway to SUU's campus. Located on an existing asphalt parking lot at the northwest corner of University Boulevard and 300 West, SUMA will be completely new construction, providing SUU with approximately 25,068 Gross-Square-Feet (GSF), including almost 16,294 Net-Square-Feet (NSF) of usable purpose-built space. With the goal of LEED Gold certification, environmental sustainability and human comfort will be at the forefront of the design.

The Preferred Site Diagram in conjunction with the Preferred Stacking Diagram (See Sections 2 and 4 respectively) illustrate the proposed location, orientation and organization of SUMA. This location aligns with the SUU Facilities Master Plan, and connects to existing vehicular and pedestrian pathways that will link SUMA to the campus and the community. While the campus has the utility infrastructure to support the proposed building, power, water, gas, sewer, and communication lines will need to be brought to the proposed building location, via an extension to an existing utility tunnel (see the Site Analysis and Civil Design Criteria for detailed information).

SUMA will provide an environmentally controlled, structurally-sound, universally accessible, highly secured, and energy and water efficient facility that will enhance a memorable experience with the fine arts and related educational programs. The following narrative elaborates on the state-of-the-art galleries, collections and conservation spaces, offices, classroom, and mechanical, electrical, and IT/AV spaces to be provided at SUMA.

FUNCTIONAL RELATIONSHIPS

At a broad scale, SUMA will function as a "jewel" at the gateway to the SUU campus. It will symbolize and embody the University's and the community's commitment to, and reverence for, the arts and education. For the near future, it will be the first major SUU building encountered en route to the University from the north (Interstate I-15/200 North arterial) and east (Main Street). It will function as a major destination for local residents and regional, even national, visitors to the community, due in no small part to the Shakespearean Festival activities.

SUMA's exterior functions will feature a Sculpture Garden and Entry Plaza. Pedestrian pathways from the Visitor/Staff and Student parking lots will connect to the Entry Plaza on the southeast corner of the site. There is an opportunity these pedestrian pathways to engage an outdoor sculpture garden space/experience. The Entry Plaza itself will serve as an outdoor room, connected to the Grand Lobby, and should provide multiple modes of seating for rest and contemplation. Gathering and staging of groups should be accommodated in the plaza. Landscaping and lighting in the plaza should be designed to provide a comfortable and safe atmosphere throughout the seasons.

Additional exterior functions include a Loading Dock (see Site Analysis in Section 2) and Collections and Conservation component (description below), Bus Drop-off Area and Large Group Staging area (see Site Analysis in Section 2), and a secondary entrance for staff/students and, potentially, guided school groups. This secondary entrance should be located with access to both the Staff and Student parking lots, and Bus Drop-off Area, near the northwest corner of the building.

Within SUMA, five distinct components have interrelated functions:

1. Galleries
2. Public Spaces
3. Museum Administration
4. Collections and Conservation
5. Education

The building support spaces, such as the Mechanical, Electrical, and IT/AV rooms, and walls/structure and circulation make up the balance of the program (approximately 8,700 SF at an estimated efficiency rate of 65%). The "Adjacency Study" diagram and Preferred Stacking Diagram, included in Section 4, illustrate the general relationships of these components, with the small but important Museum Administrative component centrally located, functionally speaking, and positioned to maximize its connection to the Galleries, Collections and Conservation, and Education components. The Public Spaces are naturally linked to the Galleries, and should be directly connected to the Education component as well. The narrative below expands functional relationships between and within the components:

PUBLIC SPACES

The Public Spaces component will be generally located on the southeast corner of the building - with the main entrance biased towards the intersection of University Boulevard and 300 West - providing access from both visitor and student parking lots, and pedestrian pathways linking the SUMA to the campus and the community. This component includes the main Entry Vestibule, the Grand Lobby (and related Table and Chair Storage), the Reception Desk/Control Point, Coat and Bag Room, Museum Store and Storage, and Restrooms/Janitor Room.

The Grand Lobby should provide a welcoming and inspiring experience, providing a multi-use space for information and orientation, casual gathering of groups and individuals, informal lectures and receptions, and displays of art. The Grand Lobby will provide direct access to all of the Galleries as well as the Classroom. Thus, this space will need to be designed to provide controlled access for after hours activities. The Reception Desk should be located so as to be immediately visible from the Entry Vestibule, as well as provide visual access throughout the Grand Lobby. The location of the Restrooms should be discrete, but recognizable from the Lobby.

A Museum Cafe with indoor and outdoor seating was considered in the initial program, but due to budget constraints, it has been eliminated from the current program of spaces. In order to provide some food service functionality for receptions and similar activities, a catering kitchen is combined with the Break Room described in the Museum Administration component.

GALLERIES

The Galleries component consists of five distinct galleries: 1. The Braithwaite Gallery (1,500 NSF), 2. The Jim Jones Gallery (1,500 NSF), 3. The Featured Gallery(2,000 NSF), 4. A non-designated gallery, and 5. Digital Arts Gallery. The Braithwaite Gallery will exhibit SUU's permanent collection on a rotational basis. The Jim Jones Gallery will feature the work of local artist Jim Jones. Currently, this space is programmed to exhibit a minimum of 14 pieces of Jones' art, requiring approximately 100 linear feet of wall space. Work by other artists will also be exhibited in this space. The Featured Gallery will house travelling exhibits, and should be designed to be easily accessible for frequent delivery of art/objects, highly flexible and easily reconfigurable. The Digital Arts Gallery will feature digital media art and should include the latest cutting edge technology infrastructure for this type of art. The opportunity for contiguous space among some or all of the galleries for large exhibits should be considered during design. Similarly, operable partitions in the galleries should be considered for flexibility and quick reconfiguration of spaces. Storage of operable wall systems will need to be studied in greater detail as the project progresses. A storage room dedicated for temporary gallery use, staging, uncrating, etc, should be located for convenient access to each of the three galleries.

These new state-of-the-art galleries will provide comfortable and environmentally controlled spaces with optimal lighting for viewing the art, and multiple modes of seating for rest and contemplation. Each of the three galleries should have direct and separate access to/from the Grand Lobby, and also be linked to one another to provide multiple circulation flow patterns for visitors. The pathways, including opening sizes,

for delivery and removal of art from the galleries must be considered in subsequent design phases. Views from one gallery into another are a welcome possibility, and should be explored in future design options. It should be noted that each of the galleries has an equal importance and none should be architecturally featured above and beyond the others.

A Student and Faculty Gallery was included in the original program, but, due to budget constraints, have been eliminated from the current program of spaces. Student and faculty shows will occur now in the Grand Lobby. It was determined that potential growth of the building, as budget (and site) allows, during subsequent design phases should occur by increasing gallery size or adding these galleries. Similarly, it was determined that long term future growth of the building, would likely be additional gallery space, and thus providing for this future connection, preferably to the Grand Lobby, will need to be carefully planned for in the design.

MUSEUM ADMINISTRATION, EDUCATION, AND COLLECTIONS AND CONSERVATION

The consolidation and collocation of administration and educational offices and workstations, and collection storage rooms and conservation workspaces will significantly improve operational efficiencies and provide opportunities for casual interaction and collaboration among faculty, staff and students. Private offices and workstations will provide a balance of privacy and openness for collaboration, daylight, views, etc.

The Museum Administration component consists of the Museum Director's office, workstations for the Director's Assistant and Volunteer Director, and a multi-functional Break Room. The Break Room will function as a conference room for administration and staff. Also, it will serve as a catering kitchen, providing food-service functionality for receptions and similar activities. For this purpose, locating the Break Room with a convenient connection to the Grand Lobby is important. See the Mechanical Design Criteria for exhausting requirements for the Break Room. A Copy/Fax work room and a File Storage room make up the balance of the Museum Administration component. Though a private restroom for Administration and Staff is desired, due to budget constraints, it was determined that they will use the public restrooms associated with the Public Spaces component described above. While small in its overall square-footage, the Museum Administration component should be centrally located to all components, functionally speaking. Direct access from this component to the Collections and Conservation spaces, as well as the Education spaces is critical.

The main space in the Education component is a 1,500 NSF multi-purpose, flat-floor Classroom (for Museum and Gallery Practices and Museum Studies programs) with moveable furniture. In addition to typical classroom activities, the Classroom will be used for art studio activities, as well as gallery mock-up and mock exhibit prep space, and should be designed to accommodate the simulation of these activities as well. An Art Supply storage room should be located adjacent to the Classroom for convenient access.

The Education Director's office and a workstation for the Education Director's Assistant will make up the balance of this component. Locating this office and workstation adjacent to the Museum Administration offices/workstations is desired.

The Collections and Conservation component consists of Receiving, Collections storage, Work Spaces and Offices.

Receiving Spaces include a 200 NSF area for items brought in through the Loading Dock, a "dirty" area for Temporary Art Storage (prior to processing), and a Fire Proof Vault. The Vault is naturally a high-security space, and should not be located on an exterior wall.

The collections storage rooms include: 3-Dimensional Collections Storage, 2-Dimensional Reserve Collections Storage, and a 2-Dimensional Permanent Collections Storage. A storage room dedicated to Photography and Works of Art on Paper was included in the initial program, but due to budget constraints, this collection will be located in the 2-Dimensional Permanent Collection Storage room. Each of these collections storage spaces will be highly secured and environmentally controlled (see the Mechanical Design Criteria for specific temperature and humidity requirements). The 3-Dimensional Collections Storage will be fitted with museum shelving, and the other collections storage rooms will be fitted with High-Density Mobile Storage units.

The work spaces include the General Work Room (for framing and matting, including large format), a Conservation Lab (for repairs and work associated with the galleries), and a general Supply Storage room for conservation supplies. The General Work Room should be located adjacent to the Galleries component. While a dedicated Exhibit Fabrication space was desired, it was eliminated from the current program of spaces due to budget constraints. Exhibit Fabrication activities will take place in the galleries.

A private office for the Registrar, two workstations, and a unisex restroom for staff make up the balance of the Collections and Conservation component. To the extent possible, the offices and workstations should be located adjacent to the Museum Administration offices and workstations.

BUILDING SUPPORT SPACES AND STRUCTURE

While a specific structural system has not been determined, analyzing the relationship between structural columns within the programmatic elements, specifically the galleries and classroom, will be critical in subsequent design phases. Column bays should be modular where possible, and should be designed to work with the optimal gallery and classroom layout. Smaller spaces, such as offices and work rooms, should be designed to work with this bay size to maximize consistency and efficiency. Beam depths should be carefully considered to maximize space above the finished ceiling for HVAC, plumbing, electrical, and IT/AV lines. While maximizing this space is imperative, it will directly shape the floor-to-floor heights (where spaces are vertically "stacked" on each other), as well as the floor-to-roof height, and, thus, the overall height of the building. The relationship of these two seemingly conflicting interests will need to be carefully studied as it will have an impact to the construction budget. However, this impact will be relatively small as the structure is proposed to be two stories (with the Building Support Spaces the primary candidate to be located on a lower level - see below), and the majority of spaces will be slab on grade (see the Building Envelope narrative for additional details).

While specific mechanical and electrical systems has not been determined, there are a few fundamental design considerations that should be noted. The Building Support Spaces (i.e. Mechanical, Electrical and IT rooms) should ideally be centrally located to minimize lengths and sizes of HVAC duct runs, plumbing pipes, electrical wiring and conduits, and tele/data lines. However, this may be compromised in order to maximize programmatic adjacencies where that is the paramount concern. For that reason, as well as favorable site conditions (due to the natural slope of the topography), and a desire to avoid a roof-top penthouse, the Building Support Spaces will likely be located on a lower level. Where required, vertical shafts for mechanical and plumbing elements should be integrated into the overall floor plan as early as possible in subsequent design phases. The locations of large mechanical equipment and duct runs above the ceiling should be carefully considered with respect to vibration, noise and sound transfer to critical spaces such as the Galleries, Classroom, and Collections Storage rooms. Use vibration isolation/dampening devices at all equipment where this is a concern. Finally, exterior access to Building Support Spaces, including delivery and removal of large equipment, should be considered early in the design phase. Such oversized access points, along with exhaust or vent stacks, roof top units, transformers, electrical panels, fire department connections, alarm devices, etc are often unattractive. Due to the four-sided nature of the SUMA site, these items should be located thoughtfully with respect to the visitor experience of SUMA.

INTERNAL RELATIONSHIPS

In addition to the functional relationships described in the preceding text, fundamental relationships and building organization elements are elaborated upon in the following text, including: Personnel Interaction, Circulation, Building Security, and Natural Light and Views. It should be noted that 4 to 8 staff members, plus volunteers (not including maintenance personnel), will be needed to open the doors and run minimal programs for a museum of this size.

PERSONNEL INTERACTION

In order to support and enhance all of SUMA's unique educational program and public activities/events, diverse environments within close proximity of one another will be necessary. It will be imperative to balance the public's (both group and individual) activities/social interactions with educational groups and staff/students operational activities. The highly active and multipurpose nature of the Grand Lobby will be especially challenging in this respect, and space and material options should be thoughtfully analyzed in subsequent design phases. The galleries will have similar challenges, and should be equally analyzed. Circulation, visual access (for security and way-finding) and noise will need to be carefully managed. Selection of materials that will dampen sound reverberation will need to be considered. Appropriate lighting strategies (including both natural and artificial lighting), to suit the various activities, will need to be considered to minimize glare and wash-out, but provide enough direct light for facial modeling.

Spaces requiring a high degree of privacy, such as offices and workstations, should be located a reasonable distance from high activity areas where feasible.

Translucency between spaces, such as interior windows, will serve to encourage interaction through visual connections. Additionally selective translucency between the public spaces and the Collections and Conservation will provide visitors the opportunity to connect with the staff/students' work and efforts required to operate the gallery.

In all spaces, furniture, lighting, and architectural finishes will indirectly affect personnel interaction. In the Grand Lobby and the galleries, multiple modes of comfortable seating, both fixed and moveable, should be thoughtfully considered. Similarly casual gather spaces in the Museum Administration and Collections and Conservation area should have multiple modes of comfortable seating. The classroom should have flexible seating and work surfaces so as to support the multi-purpose nature of the space.

Finally, interaction and connection to the SUU campus, Shakespearean Festival grounds and broader community is important. Opportunities for informative displays, such as signage, posters, and banners and perhaps even digital displays could be incorporated into both interior and exterior gathering areas. These types of elements should be designed so as to be easily changed, maintained, and secured.

CIRCULATION

EXTERNAL CIRCULATION

In general, the main parking lot and delivery access will be on the north side of the SUMA. A student parking lot will remain on the west side of the building. The majority of the staff/students and visitors to the SUMA will be coming from these two parking lots. External circulation from the north parking lot will guide staff/students and visitors to the east side of the SUMA, along 300 West. From the west parking lot, a pedestrian pathway will guide staff/students and visitors along University Boulevard. There is an opportunity for both of these pedestrian pathways to engage an outdoor sculpture garden space/experience. Similarly pedestrian pathways on both the east and south side of the building will likely link with existing street sidewalks. Ultimately, these pathways will guide staff/students and visitors to an entry plaza adjacent to the main entrance near the southeast corner of the SUMA. A secondary entrance for staff/students (and, potentially, guided school groups) should be considered, with a possible location near the northwest corner of the building. The loading dock should be located near this secondary entrance, or have a separate, secure access.

In general, ADA requirements will need to be adhered to, providing accessible entrances where required. Slopes and cross-slopes must not exceed 5% and 2% respectively, and will need to be carefully analyzed in subsequent design phases. The width of circulation paths should correspond to the amount of traffic anticipated, as well as life safety requirements. Sidewalks should not be less than five feet wide. Coordination with SUU Facilities is required to determine snow removal method and equipment. Similarly, the Design Team will need to consider additional width and structural requirements for sidewalks that may "double" as vehicular access for Facilities' maintenance vehicles.

Vehicular circulation, access and parking lots (for visitors, staff, buses, and delivery trucks) are described in detail in the Site Analysis section.

INTERNAL CIRCULATION

Internal Circulation will likely be simplified for the visiting public to aid in way-finding through the facility. The Grand Lobby is intended to be the main circulation space, connecting the exterior entry plaza to the visitor services (information, coat check, and restrooms), gift shop, galleries and classroom. The galleries will be connected together, either directly or via secondary pathways, and should provide the opportunity to move between the galleries in succession, as well as accessed individually from the Grand Lobby. Circulation should be arranged so as to provide the opportunity to close down the galleries, but provide access to all other public spaces from the Grand Lobby.

A secured entry from the Grand Lobby to the Museum Administration and Collections and Conservation spaces will be required. This entry should be relatively uncelebrated, with respect to the entrances to the galleries. Circulation internal to the Museum Administration and Collection and Conservation Spaces will need to be carefully considered during subsequent design phases as the relationships between individual offices and workspaces are further defined. In general, in order

to maximize the efficiency of these spaces, circulation paths should be double loaded, with programmed spaces on both sides, where possible.

All openings (egress and otherwise) and the width of internal circulation paths should correspond to the amount of traffic anticipated, objects/equipment to be moved, as well as life safety requirements. In order to adhere to ADA requirements, paths should not be less than five feet wide, and openings should not be less than three feet wide. Single-loaded and dead-end corridors should be minimized as the floor plan develops in subsequent design phases.

It is anticipated that the majority of the SUMA will be on one level, with the exception of the building support spaces (mechanical, electrical, IT, etc.) - see the Preferred Stacking Diagram in Section 4. As the sloped site provides opportunities, lower level spaces should have direct exterior access. However, if vertical circulation is required (stairs or elevator), it should be located so as to maximize access and egress.

NATURAL LIGHT AND VIEWS

Natural light and views are a much sought-after commodity in most campus facilities, especially in offices, classrooms, workspaces, and indoor gathering areas. The SUMA is no exception. Natural Light and views are critical to an environmentally sustainable project, and affect both the building's energy efficiency and the comfort of its occupants.

Natural light and views can come through many sources; windows, clerestory windows, skylights, and other types of transparent or translucent building materials. Windows should be oriented so as to maximize light from the northern sky, or controlled southern sunlight. Windows on the east and west sides of the building should be minimized, vertically oriented if possible, as this sunlight is relatively difficult to manage due to the change in altitude and azimuth of the sun throughout the year. The type and quality of glass, or glazing, will be critical to minimize damaging UV transmittance and unwanted solar heat gain, while managing clarity, color, and reflectivity.

Daylight and natural views will be required in order to meet minimum quantities prescribed for LEED certification (see the sustainability section on the following pages for details). In general, the program assumes the priority to provide every office and workstation, as well as the classroom, with natural light and a view to the outside. Where this is not possible, "borrowed light" strategies should be utilized. Borrowed light is difficult to quantify, however, and a lighting engineer's experience and technology will be required to for calculations required for LEED certification. Interior windows should be considered, where appropriate, for visual connection among staff and students, promoting not only safety and security, but an atmosphere of collaboration and community.

It is desired that the SUMA have an open and welcoming "Grand" Lobby. This space should promote a feeling of connection to the entry plaza and the campus/community beyond. Participants in the programming process have indicated that the Grand Lobby may have a large expanse of glazing to achieve this quality. Additionally, the lobby space is intended to be multi-functional, with public events, such as receptions and informal lectures, and at the same time have the ability to properly display works of art. With this space arranged generally on the southeast corner of the site, as shown on the preferred stacking diagram, control of the eastern and southern sunlight will need to be carefully considered.

The design of the galleries should consider opportunities for natural light, as well as opportunities to juxtapose views of the sculpture garden, or colorful landscape beyond, against the art on display. However, direct sun light should not be permitted into any gallery space. Diffused daylight may be used successfully in the galleries, but will need to be carefully considered with respect to the protection of the art from harmful UV transmittance. An equal concern with windows in the gallery spaces is fluctuations in temperature and humidity, which are both a challenge to control at any exterior wall, and even more so at windows.

Windows and natural light in the collection storage rooms will not be permitted. However, the Design Team should carefully study opportunities to utilize borrowed daylight into the related work spaces. Programming participants expressed a desire to have an interior window from the public spaces into the work spaces to allow visitors the opportunity to connect with the staff/students' work and efforts required to operate the gallery.

BUILDING SECURITY

Building security is a high priority for the SUMA. While security systems are described in detail in the following electrical narrative, the Design Team should consider opportunities to locate high-security spaces (collection storage rooms and vault) towards the interior core of the building, away from exterior walls where possible. Internal and external circulation of staff/students and the visiting public should be carefully considered as it relates to the storage and movement of museum objects between the galleries and the collections and conservation spaces.

BUILDING FORM AND ARCHITECTURAL FINISHES

During the Programming process, the Programming Team developed the architectural and experiential vision as a point of departure for subsequent design phases:

SUMA will be Southern Utah's "Jewel" at the gateway to SUU. The architecture will harmonize with Southern Utah's Landscapes and SUU's historic campus. The architecture will embody adoration for art, engaging visitors in a memorable encounter with educators, students, artists and the art itself. The architecture will exemplify hope and opportunity of the future. SUMA will be designed to be sustainable: providing high-performance climatic controls for the art, a healthy and comfortable atmosphere, energy and water efficient systems, composed with long lasting, durable, and environmentally friendly materials and methods, with a goal to meet LEED Gold certification requirements.

Throughout the conceptual and schematic design process, SUU and the Design Team must work together to develop and evolve the appropriate architectural expression that communicates this vision. However, some factors are "given." Three major forces will contribute to the development of SUMA's architecture: 1. A confluence of visual contexts: The undeniable beauty of the surrounding natural landscapes, SUU's historic campus, and the residential community, and. 2. The high desert climate, and 3. The desire for a nationally relevant, cutting-edge art museum, an icon for the campus and community.

As affirmed in the architectural vision, SUMA will be a "jewel." This describes the desire for SUMA to have a visual attraction above and beyond that of the immediate context. While the scale of the museum will be moderate - and form, materials, and landscaping will harmonize with its surroundings - SUMA will be a luminous focal point that is symbolic of its importance to SUU and the community.

At approximately 23,000 GSF, the scale of SUMA will be somewhere between the adjacent small residential structures, and the large academic structures on SUU's campus. As described in the Functional Relationships narrative, SUMA will likely be a one level structure (with a lower level for building support spaces). Yet, the Galleries will require a certain volume and height to appropriately exhibit the art. And it is desired that the Grand Lobby truly have a "grand" presence. Thus, some variation in building height is anticipated. While SUMA's form and shape is yet to be defined, the footprint it makes will necessarily respond to site factors, most importantly solar orientation and flow between pedestrian pathways and the entry points (including the sculpture garden(s) and entry plaza).

EXTERIOR

An architectural response to the visual context will be imperative. Colors and textures of the surrounding natural landscapes will likely be significant source of inspiration to the Design Team. Even the experiential character of the landscapes, such as hiking through narrow canyons, or standing atop red-rock mesas, may opportunities for formal expression. Natural materials that age beautifully ought to be considered for the majority of the material palette. Natural stone will provide the design team many colors, textures and to explore and study.

SUU's historic campus, while traditional in massing, fenestration (windows) and roof lines, has evolved from a similar respect for the natural landscapes. Brick, in all variations of reds, yellows, and browns, is used throughout campus. Harmonizing with the historic campus is vital, with a potential to do so via colors, while embracing a respectful degree of departure in form, materials, windows patterns, and roof lines.

Terracotta cladding is an alternative to both stone and brick that may warrant exploration and study. Architectural terracotta is durable, low-maintenance, and is virtually unlimited in color, texture, size and pattern. On its own, or blended with natural stone, or clay brick, architectural terracotta may be an appropriate transition from past to present.

In contrast to natural materials, a desire for translucency and connectivity between the inside and outside activities and landscapes is desired. In thoughtful locations, expanses of glass may be appropriate. Various types of glazing and sun-shading devices can be utilized to minimize harmful UV transmittance. And insulated glazing will improve the thermal performance of windows.

Similarly, natural metals, such as zinc, weathering steel, aluminum, or copper, may be used for variation and visual contrast. Cladding smaller volumes, or simply adding metal trim at doors and windows, may be an appropriate use of materials. Use of natural metal will need to be carefully detailed to avoid any galvanic action and staining. Pre-finished metals should be used sparingly, with cost to long-term maintenance ratios carefully considered.

Roofing materials are the first line of protection from rain/snow. Similarly, relatively reflective roofing materials can contribute to the overall energy efficiency of a building, and selection of an EnergyStarTM roof is recommended. Selecting the appropriate material will depend upon the form the roof takes. A concealed, low-sloping or "flat" roof will likely be a single-ply membrane (one of many types such as PVC, TPO, or EPDM). It should be noted that DFCM does not allow ballast, or stone cobbles, on membrane roofs. More visible roofs with steeper slopes will likely be, but not limited to, metal panels or metal shingles. Metal roofing materials provide a great value, due to the fact that they are typically moderate in cost, and require minimal maintenance. Due to the desired character for SUMA, use of asphalt or composite shingles is highly discouraged. As an alternative, a vegetated, or green, roof may be considered. Costs for green roofs are typically prohibitive, and detailing for water protection demands a high level of scrutiny. Long-term maintenance can mitigated with proper plant selection, utilizing drought-tolerant and regionally-suited species. While the contents of SUMA may seem in direct conflict with the implications of a green roof, it may be appropriate in certain conditions/locations - especially if a "flat" roof is required, and highly visible from surrounding locations. Regardless of roofing material, thorough study of form, materials, and details will be required.

Similar to the green roof, a vegetated/living/green wall may be an appropriate alternative material, providing an opportunity for a dynamic engagement of the architecture and the landscape. Though, similar concerns and necessarily sensitive solutions are implied.

INTERIOR

In order to create and maintain a suitable environment for the collection and exhibition of art, the architectural finishes will need to comply with the American Association of Museum Standards and Best practices. Interior finishes include, but are not limited to: floors, walls, wall base, ceilings, doors, window frames, trim, hardware, counters and cabinets, wall protection, visitor control barriers, and plumbing fixtures, mechanical and electrical devices and cover plates, related trim, furniture, etc. The following material characteristics should be considered as they apply to each individual space and function: color, texture, light reflectance, acoustic characteristics, sustainability, durability, water resistance, and maintenance. Ultimately, the interior materials should be selected with respect to a 50-year building standard. The durability of the finish should correspond to the amount of traffic/use anticipated for the space/function. Use of soft natural materials such as wood can add a sense of warmth and craft, but should be limited, and carefully detailed. See the Individual Room Sheets for specific material requirements.

The gallery walls have additional requirements: Walls in the galleries are expected to be painted frequently with changes of exhibits. Latex, or semi-permeable paint should be used, (and must be use at all exterior walls). The walls in the galleries will require the capacity to support the art. For this purpose, a layer of plywood sheathing should be included in the wall assembly. It is anticipated that the galleries will be reconfigured frequently - flexible or operable walls should be considered. Storage of these wall systems will need to be considered as well. Finally, permanent gallery walls will need to be constructed so as to limit the spread of fire and should be constructed to the underside of the roof deck.

In the Collections and Conservation areas, and any other areas of concern, opening sizes (doors) and for the movement of art and large objects should be carefully planned and coordinated. The Design Team should include wall and corner protection to limit damage from moving art and objects from room to room. Similar to the galleries, walls will need to be constructed so as to limit the spread of fire and should be constructed to the underside of the roof deck.

Architectural Materials, both exterior and interior, that contribute to the overall sustainability of the project should be sought after and preferred. Some premium may be associated with the approach, and should be accounted for and protect as future cost models are generated.

SIGNAGE

Signage is critical for identification, orientation, way-finding, and information and should be considered part of the comprehensive SUMA design solution. Signage will be provided and installed by SUU. However, the Design Team should be involved in the development of signage design to ensure a holistic aesthetic. Life safety and ADA signage will be required by code, and must be included for the State Building Official's review.

BUILDING ENVELOPE

The building envelope is a significant component of the comprehensive building system, and will contribute to the building's overall energy efficiency. More importantly, in order to create and maintain a suitable environment for the art, and comply with the American Association of Museum (AAM) Standards and Best practices, the design and construction of wall/roof/floor assemblies enveloping the collection storage spaces and the galleries will be vital. Keeping the environmental control layers consistent and continuous between the wall/roof/floor assemblies will be equally critical. Careful attention to detail will be required, and, assuming the layers of control described below are included, will be the keys to success for the building envelope.

The building envelope is an environmental separator. It protects the inside space from the outside environment (water -rain/snow, heat, air, and water vapor). The building envelope, or wall/roof/floor assembly, is composed of five to six critical layers: 1. finish/cladding (for walls) 2. the thermal control layer (insulation), 3. the water control layer, 4. the air control layer, 5. the vapor control layer, and 6. the structure. The first five layers should be located on the outside of the structure (to protect steel, and wood from the negative effects from the outside environment, such as rust, decay, etc). With an airtight enclosure, the interior environment will be much easier to control: heat/cool, move, filter, humidify (or dehumidify).

While cladding is described in Building Form and Architectural Finishes narrative above, some additional detail for the insulation and air/vapor layers is below.

THERMAL CONTROL LAYER (INSULATION):

Extruded polystyrene (XPS) is recommend due to its cost to performance ratio. This material provides a moderate 5R-value per inch, and can function as an additional vapor control layer if detailed correctly. It has a relatively high compressive strength, and can be used below grade at slab/foundations, as well as above grade.

Spray-applied closed-cell high-density foam insulation is a relatively expensive alternative, but does offer very high performance. It has a lower compressive strength than XPS.

An alternative for above-grade walls, is mineral wool. It has a moderate r-value per inch, and a very high melting point - for applications at metal panels/rain screens. Also, it is UV stable.

While polyisocyanurate has a relatively high R-value per inch, it can absorb water which will reduce its performance. Additionally, It has a lower compressive strength. Use of this material should be considered only if these concerns are adequately addressed.

Note that it is not recommended to use a batt-insulation in exterior metal stud wall cavities, as the thermal conductivity of the metal studs significantly reduces the overall performance of the wall.

Where batt insulation is necessary, mineral wool batt insulation is a preferred alternative to glass-fiber batts. In addition to having a slightly higher R-value per inch that glass-fiber, it provides fire-resistance, is water-repellant, resists mold growth, is chemically inert, and, overall, is very environmentally-friendly. While it does cost more than traditional glass-fiber batts, the benefits are generally worth it.

WATER, AIR AND VAPOR LAYERS

The water, air and vapor layers play a vital role in protecting the interior contents of the museum from the exterior environment. It is well documented that water damage is the largest source of construction defect claims. Establishing and protecting the budget for the building envelope assemblies will be critical as the project moves through design and construction phases. The intent of this section is to make certain that the Design Team adequately studies, analyses and implements a design a that eliminates, or significantly reduces, air and water flow through the building envelope.

Air barriers, by definition, are layers, or membranes, that permit below 10 perms*. Vapor barriers permit a maximum of .1 perms*. Thus, all vapor barriers are air barriers (but all air barriers are not vapor barriers). Many types of barriers are available: fluid-applied, self-adhered sheets, mechanically fastened sheets, rigid boards/panels, and poly urethane spray foams. The Design Team will be required to determine the most appropriate barrier for the actual building envelope developed in subsequent phases.

The Design Team will need to ensure that the combination of barrier materials and systems do not negate one another, and, similarly, do not contribute to the degradation of one another. This applies to the relationship between the barriers and the substrates as well. The Design Team will need to be aware of materials that are susceptible to UV deterioration, and should plan/detail accordingly.

Equally important is the management of water within the building envelope. Any water in the envelope will need to be properly drained and vented. A continuous system of drainage cavities, weep holes, and vent space will likely be required.

As energy usage is directly related to air infiltration/exfiltration, an air barrier test will be required during construction to test the air leakage of critical wall assemblies.

Note that, if batt insulation is required at certain wall/roof assemblies, the air/vapor barrier must go on the outside of the insulation. Do not place an air/vapor barrier on the warm side of the insulation. In certain conditions, this will trap moisture, reducing the performance of the wall, and creating conditions for mold growth.

*Perms = permeability, defined as a measure of the rate of transfer of water vapor through a material

While the architect typically takes the lead role in development of the building envelope, the entire Design Team is responsible for its success. Determining the overall R-value of the wall/roof/floor assemblies for the energy model, determining air pressure loads, determining the dew point, coordinating penetrations for wall finishes, mechanical and electrical devices, determining the impact of structural movement and thinking through a complex construction sequence will be just some of the tasks required by the entire team to ensure holistic building envelope solution.

It is recommended that the Design Team have a specific building envelope workshop. For review and coordination early in the design process, the Design Team should provide clear and comprehensive insulation & water/air/vapor layer section and plan diagrams, coordinated with the specifications, to ensure that the design team/contractor and owner are aware of the systems to be included in the construction of the facility, especially where transitions occur.

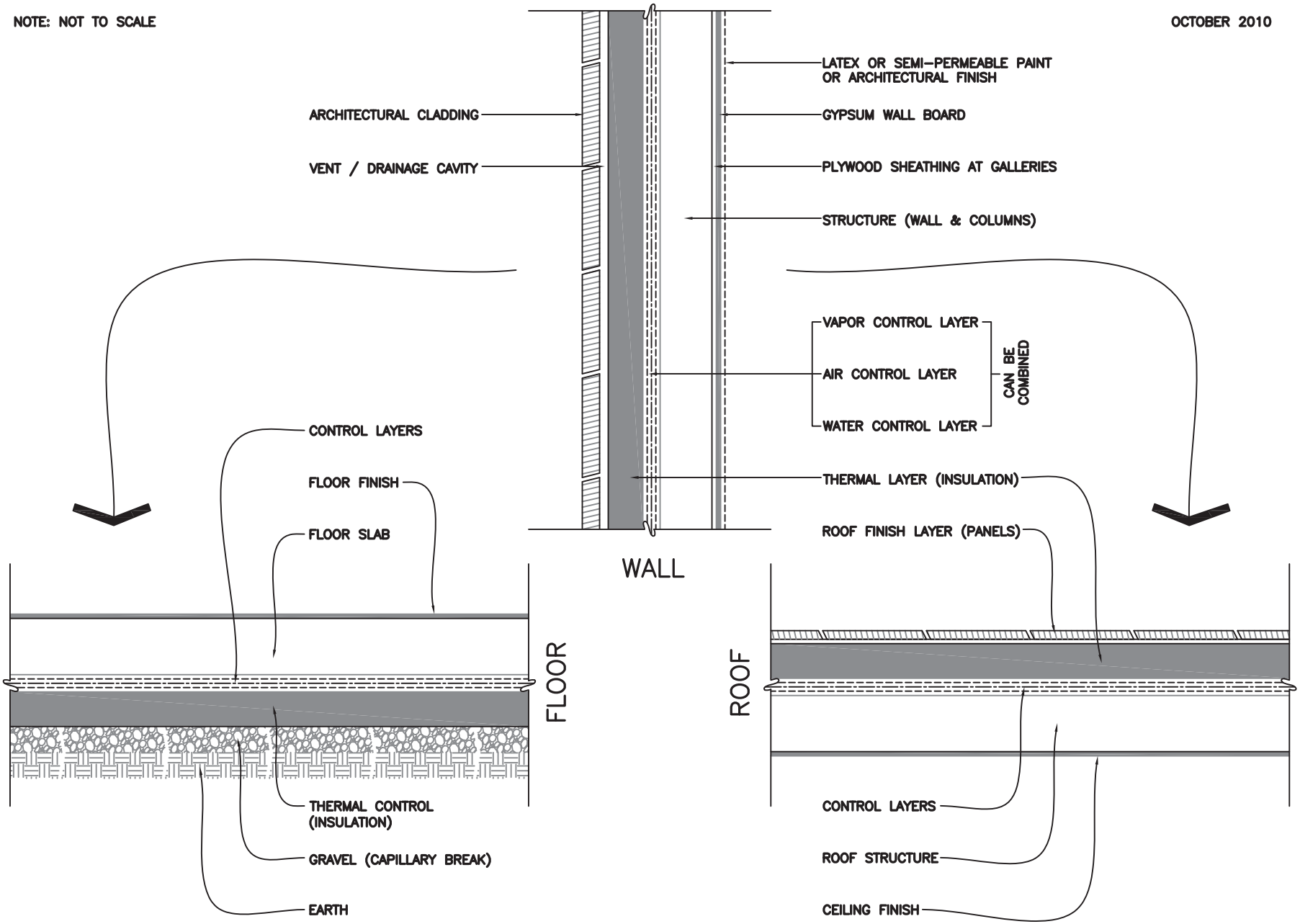
It is recommended that the owner retain a Building Envelope/Enclosure Commissioning Agent (BECA) for the Project to provide building enclosure coordination and to oversee, through design and construction, the commissioning of all building enclosure components.

PEST CONTROL

In order to comply with AAM Standards and Best practices, the Design Team will need to identify harmful pests that are specific to the region, and develop a means to manage and minimize intrusion and infestation. At a minimum seals and insect screens will be required where small openings and cavities occur at joints and connections between building materials/systems.

NOTE: NOT TO SCALE

OCTOBER 2010



WALL / ROOF / FLOOR ASSEMBLIES

BASED ON "THE PERFECT WALL" BY JOSEPH W. LSTIBUREK, Ph. D., P. ENG., FELLOW ASHRAE (WWW.BUILDINGSCIENCE.COM)

Specific security requirements must be consistent with operations and policies of SUU and the American Association of Museums (AAM) - see the appendix for reference.

MASTER PLAN RECONCILIATION

The decisions made during the Vision Workshop and Programming phase are consistent with the Southern Utah University Facilities Master Plan (October 2008). The Preferred Site Option diagram in Section 2 illustrates that the proposed location of the SUMA, on the northwest corner at the intersection of University Boulevard (Center Street) and 300 West is generally aligned with the Master Plan. This location preserves SUMA's desired relationship to SUU's main campus, the Shakespearean Festival grounds, and adjacent parking areas. Similarly, the relationship to 200 North, which provides access from Interstate I-15, is not compromised, and will contribute to the notion that this intersection is a "gateway" to SUU. As indicated in the Master Plan's Near-Term Plan, public and staff parking for SUMA will be located on the north side of the proposed SUMA site, while parking for university students will remain on the west side of the SUMA site. This plan aligns the goals of the Master Plan to develop new facilities near the core of existing facilities, and the proposed utility tunnel, to be located mid-block between University Boulevard and Harding Avenue (200 North) is also aligned with the Utilities Master Plan (Stanely Consultants, 2008).

In contrast to the Master Plan, the footprint of the building, specifically its long axis, will be oriented to minimize direct solar heat gain on the east and west exposures, while maximizing the southern and northern exposure for natural day-lighting considerations. Also in contrast to the Master Plan, it has been determined that the Performing Arts project (Phase II) will be a distinctly separate building, likely to be located to the west of the proposed SUMA site.

ARCHITECTURAL CODE NARRATIVE

The governing codes for this project are listed in the following text. The Design Team and Architect of Record - to be determined - needs to verify all required codes, and code requirements at the beginning of the subsequent design phase. It is the Design Team and Architect of Record's responsibility to utilize all of the latest revisions, editions, and adopted versions. The following analysis represents current applicable code issues and is not a complete list of applicable codes.

SUSTAINABLE DESIGN

Buildings play a significant role in our natural environment, health, productivity and economy. Sustainable design and building practices are aimed to directly address these important issues and maximize both economic and environmental performance. In the context of this Program Document, "sustainable," or "sustainability," refers to the design and building practices that make progress towards the goal of environmental sustainability, social sustainability, and economic sustainability. In an effort to contribute to this progress, the U.S Green Building Council has developed the LEED (Leadership in Energy & Environmental Design) Green Building Rating System to measure individual project design strategies and construction components that directly contribute to these goals above and beyond standard building code requirements. LEED is a voluntary, consensus-based national standard for developing high performance, sustainable buildings. The LEED process provides a complete framework for assessing building performance and meeting sustainability goals.

Based on well-founded scientific standards, LEED categorizes sustainability into six major themes: Sustainable Sites, Water Efficiency, Energy and Atmosphere, Materials and Resources, Indoor Environmental Quality, and Innovation in Design process. Holistically, concerted efforts to achieve high levels of performance in each of these categories in design and building practices contribute to a successful, high performance building, and, ultimately, an ever-growing network of high performance buildings. The U.S. Green Building council offers LEED Certification for distinguished projects that have demonstrated a commitment to sustainability by meeting the highest performance standards. Different levels of certification are available depending on the quantifiable increase in water efficiency, energy efficiency, etc (Certified, Silver, Gold, and Platinum).

The State of Utah is aligned with the U.S. Green Building council in their commitment to building sustainable projects. New projects funded by the State of Utah are required to comply with DFCM's (Division of Facilities Construction and Management) most current High Performance Building Rating System. The High Performance Building Rating System requires, as prerequisite, a minimum of LEED Silver certification level design and construction standards. By means of thorough analysis and modeling, the State intends to limit a building's ecological and economic impact, and targets strategies for reducing energy and water consumption, as well as reducing consumption and waste of resources during and after construction. Additionally, the State requires buildings to be built to a minimum 50-year life-cycle. The selection of design and construction practices are based on modeling of building systems to analyze life-cycle costs, including: Initial costs (Purchase – Acquisition), Construc-

tion Costs, Fuel and Energy Costs, Operation, Maintenance and Repair costs, Replacement Costs, Residual Values (Resale, Salvage or Disposal), and Finance Charges (loan interest payments where applicable).

The proposed SUMA is no exception to the State's requirements. In this respect, sustainability was directly addressed at a Sustainability Workshop in July 2010 - facilitated by the Programming Team, including LEED Accredited Professionals at ajc architects and consulting engineering firms. The workshop participants discussed the opportunities and challenges of a high performance building with respect to the mission and goals of the SUMA and SUU. Ultimately, the workshop participants were resolute that the proposed SUMA should maximize human health and comfort, energy and water efficiency, and implement design/construction methodology that incorporates durable, low-maintenance regional and recycled materials.

SUU is committed to designing and constructing the most sustainable facility possible, even if it results in a relatively smaller building. Ultimately, the goal for the SUMA is to meet or exceed LEED Gold certification design and construction standards. The current construction cost estimate, including costs for LEED Gold certification, is in line with the construction budget (see Section 5). The following text elaborates on Sustainable Design Criteria with respect to the State's High Performance Building Rating System requirements as well as LEED Rating System. This section is intended to be a point of departure for subsequent design and construction phases.

STATE OF UTAH / DFCM HIGH PERFORMANCE BUILDING RATING SYSTEM (2009)

REFERENCE STANDARDS AND CODES

ANSI/ASHRAE Standard 52.2,
Method of Testing General Ventilation Air-Cleaning Devices for Removal Efficiency by Particle Size

ANSI/ASHRAE Standard 55,
Thermal Environmental Conditions for Human Occupancy

ANSI/ASHRAE Standard 62,
Ventilation for Acceptable Indoor Air Quality

ANSI/ASHRAE/IESNA
Standard 90.1,
Energy Standard for Buildings Except Low-Rise Residential Buildings, including Appendix G

Illuminating Engineering Society of North America,
IESNA Lighting Handbook

U.S. Green Building,
Leadership in Energy & Environmental Design for New & Major Renovations (LEED – NC)

Per DFCM High Performance Building Rating System requirements, the project must achieve the following credits in the LEED rating system:

(1) WE Credit 1.1: Water Efficient Landscaping: Reduce by 50%

(2) EA Credit 3: Enhanced Commissioning

(3) EQ Credit 3.1: Construction IAQ Management Plan: During Construction

(4) EQ Credit 4.1: Low-Emitting Materials: Adhesives and Sealants

(5) EQ Credit 4.2: Low-Emitting Materials: Paints and Coatings

In addition to building design criteria presented in the program, specific energy modeling requirements include the development of a Preliminary Load Baseline Model that identifies:

- Annual Energy Use (BTU/SF/yr, kWh/SF/yr, $/SF/yr) of baseline building
- Peak heating/cooling day profile
- Baseline envelope criteria
- Baseline equipment efficiencies
- Baseline systems
- Energy Use by loading type
  - Graphs and chart that illustrate energy loads breakdown such as those from space heating, cooling, equipment, hot water, lighting, pumps, etc. The purpose of this is to understand the magnitude of energy loads relative to each other.

- Energy reduction prediction based on energy reduction strategies. Predictions should be broken out by measure to understand their respective impact. These strategies may include, but are not limited to high efficiency glazing, envelope, or lighting, daylighting, building orientation, and efficient mechanical systems such as evaporative cooling or equipment such as pumps or fans. Also included shall be a description of the following:
  - Load reduction strategies to be analyzed in schematic design
  - Energy saving strategies to be analyzed in schematic design

Per DFCM requirements, the facility must be equipped with meters or sub meters to measure the individual facility's energy consumption on an ongoing basis in a format that allows the consumption data to be entered into the Energy Star Portfolio Manager Program.

SUSTAINABILITY GOALS

Fundamental Building Systems Commissioning: DFCM will engage a Commissioning Agent that is not an individual directly responsible for project design or employed by one of the designers. Commissioning Agent shall ensure that fundamental building components are installed and calibrated to operate as intended.

Life-Cycle Cost Analysis: The Design Team shall use life-cycle cost analysis in making decisions about their investments in products, services, construction, and other projects to lower the State Government's costs and to reduce energy and water consumption.

Mold Prevention during Construction: Contractor shall ensure porous type building materials, such as wood, insulation, paper, and fabric, is kept dry to prevent the growth of mold and bacteria. Materials that have been affected by mold shall be abated or replaced. Building insulation that is damp or wet for 72 hours shall be replaced.

Building Envelope: The building envelope is a significant component of the building system, and shall be designed to contribute to the building requirement to be 30% better than ASHRAE 90.1-2004 minimum requirements.

SUSTAINABLE SITES

Site Selection: During the site selection process, preference was given to those sites that did not include sensitive site elements and restrictive land types. As the design progresses, the Design Team is to study the building footprint so as to minimize site disruption of any immediate environmentally sensitive areas that may be identified in subsequent analysis. No environmentally sensitive items were identified during the Programming phase.

Development Density & Community Connectivity: During the site selection process, preference was given to sites with direct pedestrian access the SUU Campus, The Shakespearean Festival grounds, and to a variety of community services. Parking, near arterial streets at the perimeter of campus will help to encourage a walk-able community.

Alternative Transportation/Public Transportation: Currently, there is NOT a campus shuttle. While there is a public transportation system (CATS), it currently does not have a designated stop close to the site. The closest stop is near the Shakespeare Festival grounds. In order to reduce pollution and land development impacts from automobile use, alternative transportation/public transportation should be a part of future planning efforts. A transportation survey of future building occupants to identify transportation needs may be useful.

Alternative Transportation/Bicycle Storage & Changing Rooms: . In order to reduce pollution and land development impacts from automobile use, the Design Team should design the building with transportation amenities such as bicycle racks and showering/ changing facilities. On a similar note, skateboards are commonly used for transportation on campus. Students should be able to "check" their skateboards at the coat check room inside the SUMA.

Alternative Transportation/Low-Emission & Fuel-Efficient Vehicles: In order to reduce pollution and land development impacts from automobile use, The Design Team should minimize parking lot/garage size to the extent possible. This will need to be carefully considered with the community's expressed need for additional parking to support the

Shakespearean Festival activities. Consider sharing parking facilities with adjacent buildings. Consider alternatives that will limit the use of single occupancy vehicles. Provide preferred parking stalls for car-pooling and Alternative Fuel vehicles.

Site Development/Maximize Open Space: To the extent possible, the Design Team should provide a high ratio of open space to development footprint to promote biodiversity. Perform a site survey to identify site elements and adopt a master plan for development of the remainder of the project site (Future Performing Arts Center - Phase 2, Student and Visitor Parking lots, etc). Minimizing the building footprint to minimize site disruption is a potential strategy. Other strategies include stacking the building program, and sharing facilities with neighbors to maximize open space on the site.

Heat Island Effect - Roof/Non-Roof: The Design Team should study designs that help to reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat. The Design team should consider installing high-albedo and vegetated roofs to reduce heat absorption. Similarly, constructed surfaces on the site could be shaded with landscape features. The Design Team should consider utilizing high-reflectance materials for hardscape. Also, consider replacing constructed surfaces (i.e., sidewalks, parking lots, etc.) with vegetated surfaces such as vegetated roofs and open grid paving or specify high-albedo materials to reduce the heat absorption.

WATER EFFICIENCY

See the Civil and Landscape Architecture narratives for specific description of strategies to maximize water efficiency.

ENERGY AND ATMOSPHERE

Fundamental and Enhanced Commissioning of the Building Energy Systems: Per the State of Utah/DFCM's requirements, The SUMA project will include comprehensive building commissioning. The commissioning process will verify and document that the building's systems (electrical, mechanical, plumbing, building controls, AV, IT, elevators, life safety, building envelope, etc) are installed, calibrated and perform according to the owner's project requirements, basis of design, and construction documents. Though the commissioning agent will be contracted by DFCM - and the General Contractor is ultimately responsible for the end product to function as designed - the process is accomplished through cooperation, coordination and communication of the entire Project Team (contractors, architects, engineers, inspection and testing firms, commissioning agent, ender users, the State Fire Marshal, and DFCM). In order to meet this requirement, the commissioning process will begin early in the design process, and will have ongoing activities after systems performance verification is completed.

See the Mechanical Design Criteria narrative later in this section for related information on refrigerant management, optimized energy performance, and measurement and verification.

Renewable Energy: In order to reduce environmental and economic impacts associated with fossil fuel energy use, non-polluting and renewable energy has been be considered in the programming process. SUU currently does NOT invest in "green power" (commercially available electricity generated from off-site renewable energy sources - solar, wind, biomass, geothermal, and hydroelectric). The Design Team should assess the project for on-site, self-supplied building integrated photovoltaic panels, to take advantage of the southern exposure the site offers. Other strategies (wind, geothermal, low-impact hydro, biomass and bio-gas) were considered, but were ultimately determined to not be feasible for this project. The Design Team should work with the local utility company to see if opportunities for net metering are available.

MATERIALS AND RESOURCES

Utilization of materials suggested in the categories identified below will need to be carefully considered with respect to the available construction budget, as well as the long-term performance and durability of the material. Regular maintenance requirements of these products should be thoroughly discussed and coordinated with SUU Facilities Maintenance staff.

Recycled Content: The Design Team should establish a project goal for utilizing pre-consumer/post-consumer recycled content materials and identify material suppliers that can achieve this goal. LEED establishes two levels for incremental credits - 10% and 20%, and gives preference to post-consumer recycled products. The Design Team should consider a range of environmental, economic and performance attributes when

selecting products and materials. As this and other projects utilize recycled content materials, there will be and increased demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials. During construction, the Design Team and contractor will need to ensure that recycled content materials are installed, and quantify the total percentage of materials installed.

Regional Materials Extracted, Processed & Manufactured Regionally: The Design Team should establish a project goal for utilizing locally sourced materials, and identify materials and material suppliers that can achieve this goal. LEED establishes two levels for incremental credits - 10% and 20%. Specifying regional materials will contribute to an increased demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation. During construction, the Design Team and contractor will need to ensure that the specified regional materials are installed and quantify the total percentage of materials installed.

Rapidly Renewable Materials: In order to reduce the use and depletion of finite raw materials and long-cycle renewable materials, the Design Team should establish a project goal for utilizing rapidly renewable materials and identify products and suppliers that can support achievement of this goal. The Design Team should consider materials such as bamboo, wool, cotton insulation, agrifiber, linoleum, wheatboard, strawboard and cork. by replacing them with rapidly renewable materials. During construction, the Design Team and contractor will need to ensure that the specified rapidly renewable materials are installed and quantify the total percentage of materials installed.

Certified Wood: In order to encourage environmentally responsible forest management, the Design Team should establish a project goal for FSC-certified (Forest Stewardship Council) wood products and identify suppliers that can achieve this goal. During construction, the Design Team and contractor will need to ensure that the specified FSC-certified wood materials are installed and quantify the total percentage of materials installed.

Storage & Collection of Recyclables: It is important that the SUMA project consider strategies to contribute to the reduction of waste generated by building occupants that is hauled to and disposed of in landfills. Within the building, locate right-sized recycling areas for the collection of glass, plastic, office paper, newspaper, cardboard and organic wastes. Consider employing collection bins at individual workstations to further enhance the recycling program.

Construction Waste Management/Divert from Disposal: The Design Team should establish goals for an overall percentage of construction, demolition, and land-clearing waste to be diverted from disposal in landfills and incinerators and adopt a construction waste management plan to achieve these goals. LEED establishes two levels for incremental credits - 50% and 70%. Consider recycling cardboard, metal, brick, acoustical tile, concrete, plastic, clean wood, glass, gypsum wallboard, carpet and insulation. Designate a specific area(s) on the construction site for segregated or comingled collection of recyclable materials, and track recycling efforts throughout the construction process. Identify construction haulers and recyclers to handle the designated materials. Where possible, salvage materials for re-use on site. Or, redirect reusable materials to appropriate sites, including consideration to make a donation of materials to charitable organizations.

INDOOR ENVIRONMENTAL QUALITY

The narrative below includes architectural-related components of indoor environmental quality. See the Mechanical Design Criteria narrative for minimum indoor air quality (IAQ) performance, outdoor air delivery monitoring, increased ventilation, controllability of thermal comfort systems, etc. Similarly, see the Electrical Design Criteria narrative for controllability of lighting systems.

Low-Emitting Materials: In order to reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants, as well as the art collection, the Design Teams should specifically address the following items:

Adhesives & Sealants: Specify low-VOC materials in construction documents. The Design Team will need to ensure that VOC limits are clearly stated in each section of the specifications where adhesives and sealants are addressed. Common products to evaluate include general construction adhesives, flooring adhesives, fire-stopping sealants, caulking, duct sealants, plumbing adhesives, and cove base adhesives.

Paints & Coatings: Specify low-VOC paints and coatings in construction documents. The Design Team will need to ensure that VOC limits are clearly stated in each section of the specifications where paints and coatings are addressed. Track the VOC content of all interior paints and coatings during construction.

Carpet Systems: Clearly specify requirements for product testing and/or certification in the construction documents. The Design Team will need to select products that are either certified under the Green Label Plus program or for which testing has been done by qualified independent laboratories in accordance with the appropriate requirements.

Composite Wood & Agrifiber Products: Specify wood and agrifiber products that contain no added urea-formaldehyde resins. The Design Team will need to specify laminating adhesives for field and shop applied assemblies that contain no added urea-formaldehyde resins.

Indoor Chemical & Pollutant Source Control: In order to minimize exposure of building occupants and the art collection to potentially hazardous particulates and chemical pollutants, the Design Team should provide facility cleaning and maintenance areas with isolated exhaust systems for contaminants. The Design Team should ensure physical isolation from the rest of the regularly occupied areas of the building. The Design Team should locate and specify permanent architectural entryway systems such as grilles or grates to prevent occupant-borne contaminants from entering the building. High-level filtration systems in air handling units processing both return air and outside supply air should be installed. The Design Team and contractor will need to ensure that air handling units can accommodate required filter sizes and pressure drops.

Daylight & Views: The SUMA design should provide the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building, except where harmful to the art collection. In the gallery spaces, if desired, windows, skylights and other devices may be utilized, but will need to be carefully designed and located to eliminate harmful UV transmittance and limit the negative affect windows may have on the overall performance of the building envelope.

In order to maximize daylight and views, the Design Team should consider these strategies: building orientation, shallow floor plates, increased building perimeter, exterior and interior permanent shading devices, high performance glazing and automatic photocell based controls. The Design Team can predict daylight factors via manual calculations or model daylighting strategies with a physical or computer model to assess footcandle levels and daylight factors achieved. Views and daylighting in spaces that will contain art works (galleries, etc) will need to be carefully studied in subsequent design phases.

Environmental Tobacco Smoke (ETS) Control: The Utah Indoor Clean Air Act is designed to protect the public from exposure to the harmful effects of environmental tobacco smoke (commonly called second hand smoke).The Indoor Clean Air Act prohibits smoking in indoor enclosed spaces of public access, and within 25 feet of any entrance-way, exit, open window, or air intake of buildings and designated outdoor smoking permitted areas are not allowed within 25 feet of any entrance-way, exit, open window, or air intake of buildings.

LEED APPLICATION AND CERTIFICATION

Sustainable planning, design, and construction strategies should continue to be evaluated throughout subsequent design phases. While DFCM requires Silver Level of certification, and SUU has a goal of Gold Level of certification, some sustainable design initiatives are not appropriate or feasible for this project. A LEED Project Checklist should be completed early in the next design phase to determine potential "points" and the feasibility of achieving Gold level of certification.

To encourage and facilitate the comprehensive integration of the sustainable design and construction strategies described in the preceding narrative, a LEED Accredited Professional should be included on the Design Team. A LEED Accredited Professional will be able to educate the Project Team members, and streamline the LEED application and certification process.

code analysis

2009 INTERNATIONAL BUILDING CODE

OCCUPANCY CLASSIFICATION – IBC CHAPTER 3

- A -3 (Museum - Assembly) main occupancy
- B (Office)
- S-1

TYPE OF CONSTRUCTION – IBC CHAPTER 6

- Type II-B, (sprinkled)

ALLOWABLE BUILDING HEIGHT & FLOOR AREA – IBC CHAPTER 5, TABLE 503

• Maximum height	= 55 feet plus
20 feet for sprinklers	= 75 feet
Actual = 22 feet +/-	
• Maximum number of stories	="A-3" Occupancy 2 plus
1 story for sprinklers	= 3 stories above grade
• "B" Occupancy	= 3 plus
1 story for sprinklers	= 4 stories above grade
• "S-1" Occupancy	= 2 plus
1 story for sprinklers	= 3 stories above grade
Proposed	= 2 stories above grade
•	Lower level is mechanical only
• Maximum Floor Area =	="A" Occupancy 9,500 sf
Plus (9,500 x 2) for Sprinklers)	= 19,000, plus
(75% for Frontage) 7,125	= 35,625 sf
• "B" Occupancy	= 23,000 sf
Plus (23,000 x 2) for Sprinklers)	= 46,000, plus (75% for Frontage)
17,250 = 86,250 sf	
• "S-1" Occupancy	= 17,500 sf plus
(17,500 x 2) for Sprinklers)	= 35,000, plus
(75% for frontage) 13,125	= 65,625 sf
Proposed = 25,068 sf	

OCCUPANCY SEPARATION – IBC TABLE 508.3.3

- No separation is required between non-separated occupancies

ACCESSORY OCCUPANCIES – IBC SECTION 508.2.4

- No separation required between accessory occupancies

MIXED OCCUPANCY – IBC SECTION 508.3

- Non-Separated Occupancies
- Most restrictive code requirement for the different occupancies is to apply

FIRE RESISTIVE REQUIREMENTS – IBC CHAPTER 6, TABLE 601

• Structural Frame	0 hour rating
• Bearing Walls	
Exterior	1 hour rating
Interior	1 hour rating
• Exterior Nonbearing Walls	0 hour rating
• Interior Nonbearing Walls	0 hour rating
• Floor (including supporting beam and joists)	1 hour rating
• Roof (including supporting beam and joists)	1 hour rating
• Corridor	0 hour rating
	(table 1018.1)
• Elevator Shaft	1 hour rating
	(Section 708.4)

OCCUPANCY LOAD FACTORS – IBC CHAPTER 10, TABLE 1004.1.1

Description of Occupancy	Occupancy Load Factor (SF/occupant)
• Assembly	
(Concentrated – Chairs only)	7 net
(Standing Space)	5 net
(Un-Concentrated – Tables and Chairs	
Conference, break rooms)	15 net
• Educational	
(Classroom)	20 net
• Business Areas	
(Offices, workstations, Labs)	100 gross
• (Storage areas, Mechanical,	
Electrical, Telecom, Janitor Coat and Bag)	300 gross
• Mercantile (Grade floor area)	30 gross
• Kitchen 200 gross	
• Parking (Receiving)	500 gross\
• Educational (Classrooms, Residence Studio,	
Children Art Studio)	20 net
• Library (Library/Research)	50 net

EGRESS WIDTH PER PERSON SERVED – IBC CHAPTER 10, TABLE 1005.1

• Stairways	= .30 inches/occupant
• Other = .20 inches/occupant	
• Section 1018.2, Minimum	
corridor width	= 44 inches (some exceptions)
• Section 1008.1.1, Minimum	
door width	= 32 inches clear;
maximum door leaf	= 48 inches

NUMBER OF EXITS – IBC CHAPTER 10, TABLE 1015.1

- '"A, B, and M" occupancy load that exceeds 49 will require two exits
- 'S' occupancy load that exceeds 29 will require two exits

TRAVEL DISTANCE – IBC CHAPTER 10, TABLE 1016.1

- 'A' occupancy (sprinkler) = 250 feet (most restrictive applies)

EXIT SEPARATION – IBC CHAPTER 1015.2.1 EXCEPTION 2

- Exit separation in sprinkled buildings = one third (1/3) the diagonal dimension of the building or area

Code Analysis

STAIRS / RAMPS – IBC CHAPTER 10

- Section 1009.1 – The width shall not be less than 44 inches; to determine the egress width, multiply the occupancy times .30 to equal the number of width inches required. (section 1005.1)
- Stairway to the roof – IBC Section 1009.11; Not required (less than 4 stories above grade)
- Access to the roof shall be permitted to be a roof hatch (1009.11.1, exception)
- If roof hatch is located with in 10 feet of the edge of a roof, guards are required.
- Area of Refuge is not required (Section 1007 exception 3)

GUARDS – IBC SECTION 1013

- Guards required along open-sided walking surfaces that are located more than 30 inches above the floor or grade below
- Section 1013.2 – protective barrier not less than 42 inches.
- Balusters or ornamental pattern shall not let a 4-inch sphere pass through any opening to 34 inches; from 34 inches to 42 inches an 8-inch sphere can not pass through.; a 6-inch sphere can not pass through the triangle formed by riser and tread.

CORRIDORS – IBC SECTION 1018

- Section 1018.2 – The minimum corridor with is 44 inches. To determine the egress width, multiply the occupancy times .2 to equal the number of width inches required. (section 1005.1)
- Section 1018.4 exception 2 – Dead end corridors shall not be greater than 50 feet.

ACCESSIBLE – IBC CHAPTER 11

- Section 1104.3 – An accessible route from the Accessible parking to the building entry
- Section 1105.1 – At least 60% of the entrances shall be accessible
- Section 1106 – Accessible parking spaces shall be provided in compliance with table 1106.1
- Section 1106.5 – At least one accessible parking stall will be Van accessible; provide 1 Van per 6 accessible parking
- Section 1109.2.2 – At least one wheel chair-accessible compartment will be provided and one ambulatory-accessible water closet compartment
- Section 1109.3 – each restroom will need to have 5% (at least one) accessible sink
- Section 1109.5 – no fewer than two drinking fountains shall be provided on a floor.
- Section 1110. – Required accessible elements shall be identified using the international symbol of accessibility

CEDAR CITY BUILDING ORDINANCE

- Parking requirements — follow DFCM requirements
- Easement Restrictions — suggested to have 20 foot setbacks for corner buildings

ELEVATOR – IBC SECTION

- Section 1003.7 – Elevator may by used as an accessible means of egress
- Section 708.14 exception 4; Elevator lobby not required
- Section 1104.4 exception 2; Lowest level does not contain accessible elements. Mechanical room.

ACCESSIBLE PARKING SPACES – IBC TABLE 1106

- 1 to 25 parking spaces required — 1 accessible space
- 26 to 50 parking spaces required — 2 accessible spaces

VAN SPACES – IBC SECTION 1106.5

- At least one accessible parking space shall be provided

Code Analysis

PLUMBING FIXTURES REQUIRED – IBC CHAPTER 29

- A-3 occupancy (most restrictive)
- Proposed Occupancy = 1,554 occupants; Male = 777 occupants; Female = 777 occupants

	Water Closets		Lavatories	Drinking Fountains	Service Sink
	Male	Female			
Required:	1/125	1/65	1/200	1/500	1
Proposed fixtures	7 wc	12 wc	8 lav.[1]	3 df [2]	1ss

Note[1]: Provide one accessible Family toilet room (may be part of the total count)

Note[2]: 50% of the Drinking fountains shall have accessible means for standing and wheelchair

AUTOMATIC FIRE SPRINKLER SYSTEM – IBC CHAPTER 9 AND NFPA 13

- Automatic Fire Sprinkler System through out
- NFPA Chapter 10, Portable Fire Extinguishers; max. travel distance is 75 feet; max. distance between fire extinguishers is 150 feet.
- Storage rooms are sprinkled.

INTERIOR FINISHES FLAME SPREAD INDEX – IBC SECTION 803.9

Occupancy group "A-3"; sprinklered

- Exit enclosures and exit passageways 'B'
- Corridors 'B'
- Rooms and enclosed spaces 'C'

ROOF – IBC CHAPTER 15

- Section 1504.1 – Roof decks and roof Covering will be designed for wind loads for the locations.
- Roof Covering Fire Classification – IBC Table 1505.1
- Type of Construction III-B = Minimum of a 'C' Cover Fire Classification

structural

INTRODUCTION

The structural design for this project should provide a building system which will integrate with the program requirements for space layout, as well as with the architectural and building service needs, while meeting current code standards for vertical and horizontal load carrying capacity. User needs in terms of current flexibility of the spaces and future adaptability of use should be considered. The level of user comfort determined by the acoustic and vibration sensitivity of the structure should also be addressed.

STRUCTURAL/SERVICE COORDINATION

Layout of the structural grid will need to respect the planning modules established for the various building functions. During the design phase, a completely integrated approach to building systems is recommended. Distribution of HVAC, plumbing and electrical services must be carefully coordinated with the structural elements, particularly at framing intersections and major crossover points. This close coordination must be achieved in order to avoid conflicts between building systems and limit penetrations of major structural members.

CODES AND STANDARDS

The building structure shall be designed in accordance with the DFCM Design Manual and the 2009 International Building Code (IBC 2009).

- Codes and standards that apply to the design of this building are:
- 2009 International Building Code
- DFCM Design Manual – March 15, 2006
- ASCE 7-05 Minimum Design Loads for Buildings and Other Structures
- American Institute of Steel Construction (AISC) Specification for Structural Steel Buildings with Commentary (AISC 360-05) and Seismic Provisions for Structural Steel Buildings (AISC 341-05)
- ACI 318-08 Building Code Requirements for Reinforced Concrete
- ACI 530-08 Building Code Requirements for Masonry Structures
- American Iron and Steel Institute (AISI) Specifications for the design of Cold-Formed Steel Structural Members
- American Welding Society (ANSI/AWS) D1.1 Structural Welding Code
- Steel Joist Institute (SJI) for open web Joists and Girders
- Steel Deck Institute (SDI) for Metal floor and roof Decks

GEOTECHNICAL CRITERIA

A geotechnical report for the new museum building has been completed by Applied Geotechnical Engineering Consultants Inc., and is dated Oct. 19, 2010. The report states that the existing subsurface soil profile consists of a layer of fill overlying a layer of silt with varying amounts of sand. The silt/sand layer is underlain by silty gravel with some sand to the maximum depth investigated, approximately 29 feet. The depth of the existing fill layer varies from zero to approximately 13 feet below grade. The depth of the silt/sand later varies from approximately 13 to 18 feet below existing grade. The silt/sand layer is identified as having collapse potentials ranging from approximately 2 to 4 percent when it is wetted under load. No groundwater was encountered in the soils to the depth investigated.

The report recommends that the underlying collapsible silty soils be removed for the full depth beneath the proposed building area and be replaced with compacted site grading fill. The site grading fill should be compacted to a minimum 95% compaction, and should extend at least 10 feet beyond the perimeter of the building. The removed soil may be re-used as site grading fill in the pad beneath the building. In addition to the site grading fill beneath the building, a zone of imported granular structural fill or suitable on-site granular soil should be placed beneath each of the footings to reduce potential settlement according to the dimensions indicated in the Foundation section of the report.

The proposed museum building may be supported on conventional spread footings bearing on the new layer of compacted structural fill. The spread footings may be designed for allowable bearing pressures varying from 2,000 psf to 3,000 psf depending on the width of the spread footings as indicated in the geotechnical report. The minimum width of spread footings should be 18 inches.

The design team shall coordinate all aspects of the site preparation, earthwork, and foundation system design with the geotechnical report.

Due to the extent of anticipated over-excavation, the design team should thoroughly review and discuss appropriate spaces that can be located in a lower level basement such as mechanical, electrical, and additional building storage.

BASIS OF DESIGN

LOADING CRITERIA

The structural systems in the facility shall be designed to meet the requirements of the 2009 International Building Code (IBC), Minimum Design Loads for Buildings ASCE 7-05 and the DFCM Design Manual adopted by the Utah State Building Board. Copies of the Design Manual can be obtained from the Division of Facilities Construction Management (DFCM) web site. Section 3.1 deals with enhancements of building code requirements and section 3.4 lists general design requirements. The following minimum requirements should be anticipated:

- Wind Velocity: 90 mph, Exposure "B" or "C", for the building, as appropriate to the site. Wind Importance Factor I=1.15 for an occupancy category III building.
- Seismicity: 2009 IBC and ASCE 7-05 Seismic requirements with a "Seismic Importance Factor" of I = 1.25 for an occupancy category III building.
- Roof Base Snow Load: 33 psf minimum plus snow drift where appropriate.
- Snow Load Importance Factor I = 1.1 for an occupancy category III building.
- Floor Design Live Loads: Floor design live loads shall be in accordance with the latest edition of the DFCM Design Criteria Manual and as follows:
  1. Assembly areas and exhibit space: 150 psf distributed load and 2,500 lb. concentrated load
  2. Office areas: 80 psf distributed load plus 15 psf minimum partition load, and 2,500 pound concentrated load
  3. Corridors, exits: 100 psf distributed load
  4. Areas of concentrated standard file storage: 125 psf
  5. Heavy paper storage areas: 250 to 350 psf as appropriate
  6. Mechanical Equip. Rooms: 125 psf minimum, or more if required by the actual weight of equipment.

Areas where heavy load concentrations exceed the normal loading requirements shall be designed for the specific load case.

The more stringent requirement between the 2009 IBC, the DFCM Design Criteria Manual and the loads given above shall govern.

STRUCTURAL SYSTEM SELECTION AND COST COMPARISON

The structural system chosen shall be selected based upon the following:

- A cost comparison of at least two structural systems shall be investigated. The comparison should be broken down in detail with each component of cost significance being listed separately. The overall cost impact of alternate foundation systems as they relate to the foundation load magnitudes from different structural systems (i.e. steel versus concrete) shall be considered as part of this investigation.
- Various structural systems comparing building construction time, material availability, coordination of various trades, lead times for ordering materials, appearance, owner preference, maintenance costs, flexibility for future remodeling, and compatibility with surrounding buildings should be considered when choosing the final structural systems.

- The structural system comparison shall include considerations of vibration performance of the finished structural system to provide the vibration environment needed for the comfort of the building occupants. See paragraph F of Section 3.1 of the DFCM Design Requirements. The suggested guideline for vibration evaluation of floor systems is AISC Design Guide 11 "Floor Vibrations due to Human Activity". Present plans for the building do not include any vibration sensitive equipment that would require more stringent vibration performance than what is suggested for comfort of the building occupants.
- Damage to the building structure and its contents due to lateral earthquake and/or wind loads should be evaluated between various structural systems. Damage control to building non-structural systems is a pertinent and important consideration when selecting the building structural system.

More rigid shear wall and/or braced frame lateral force resisting systems generally experience a lower degree of inter-story lateral drift from earthquake forces than more flexible systems such as moment resistant frames. This lower degree of lateral drift between levels of a building can result in reduced damage to a building's non-structural elements and contents than may be experienced with a more flexible movement frame lateral force resisting system, This is because the non-structural elements are not displaced laterally as much as they otherwise would be with more flexible systems. On the other hand, the more rigid lateral force resisting systems impose higher earthquake acceleration forces on the non-structural elements and contents. The design and detailing of the non-structural elements shall consider the relative stiffness of whatever lateral force resisting system is selected for the building, and the associated acceleration forces imposed on them during an earthquake. Non-structural elements shall be anchored to the structure or other supporting elements to effectively resist the lateral earthquake forces specified in the 2009 IBC.

Cast-in-place reinforced concrete shear wall lateral systems usually work most economically with a cast in place reinforced concrete structural floor framing system while diagonally braced steel lateral systems or moment resistant frames are usually most economical in conjunction with composite steel floor framing systems. One clear advantage of moment frame lateral force resisting system that needs to be considered is that they provide almost unlimited programmatic and planning flexibility initially and during the life of the building.

The structural system for the new utility tunnel will most likely be a conventionally reinforced concrete structure. The design team should consider both cast-in-place and precast concrete systems for the new tunnel based on constructability and scheduling constraints. Other systems should be considered as well if they are deemed appropriate as the design of the tunnel develops.

All cost comparisons between structural systems shall include interface costs between other building components such as architectural finishes, exterior enclosure systems, mechanical systems, and electrical systems. Life cycle costing methods shall be used where applicable.

FUTURE BUILDING EXPANSION

- Future vertical expansion is not anticipated, but this topic shall be considered and decided upon by the design team in the early phases of the design process.
- Future horizontal expansion of the structure is a possibility and merits further consideration during the design phase. It is anticipated that any future horizontal expansion of the building will be separated from the building by an expansion/seismic joint.

EARTHQUAKE DESIGN

The proposed structure shall be designed according to the requirements of the adopted edition of the International Building Code and "Minimum Design Loads for Buildings" ASCE 7-05. According to the project geotechnical report, there are no mapped earthquake faults extending through the site. Spectral acceleration values for the site taken from the 2009 IBC maps are Ss = 0.704 and S1 = 0.223. These spectral acceleration values shall be verified during the design process.

The IBC classifies public assembly facilities with more than 300 occupants as Occupancy Category III buildings. An Earthquake Importance Factor, "IE" of 1.25 shall be used in earthquake design analysis according to Table 11.5-1 of ASCE 7-05.

WIND DESIGN

The IBC classifies public assembly facilities with more than 300 occupants as Occupancy Category III buildings. A Wind Importance Factor, "IW" of 1.15 shall be used in wind design analysis according to Table 6-1 of ASCE 7-05.

ROOF SNOW LOAD DESIGN

The IBC classifies public assembly facilities with more than 300 occupants as Occupancy Category III buildings. A Snow Load Importance Factor, "IS" of 1.1 shall be used in snow load design analysis according to Table 7-4 of ASCE 7-05.

TESTING AND INSPECTIONS

The Architect/Engineer, and the selected testing lab, shall perform periodic construction observations, testing, and special inspections, as outlined in Chapter 17 of the International Building Code. The design engineer shall list all required special inspections on the contract drawings, and perform periodic construction observations as required by the A/E agreement. Costs for special inspections and testing services will be paid by the owner.

SUSTAINABLE DESIGN PRINCIPLES

The selection and design of structural systems for the building shall consider and implement sustainability measures to achieve the desired LEED rating for the building, and as outlined in the DFCM High Performance Building Rating System. The following design attributes shall be considered as possible sustainability credits.

- Recycled content for structural steel and reinforcing steel should be considered for the project.
- Specify recycled content in the concrete mix as needed and appropriate. Investigate the use of concrete mixes with high fly ash content, or a combination of fly ash and slag cement.
- Investigate the possibility of achieving an innovation credit for use of a combination of slag cement and portland cement in the concrete mix.
- Specify the use of regionally produced materials including, but not limited to, open web steel joists, structural steel sections, reinforcing steel, cement, and fly ash.
- Design and configure the lateral force resisting system to be compatible with the desired daylighting credits for the building. Consider the possibility of using more open lateral force resisting systems such as braced frames or moment resistant frames rather than more obstructive systems such as shear walls. Locate the lateral force resisting elements to reduce obstructions and achieve the desired level of daylighting within the building.

mechanical

APPLICABLE CODES AND STANDARDS

Conform to the latest edition of the following codes and standards, or the requirements defined in this program, whichever is more restrictive:

- 2009 IBC
- 2009 IMC
- 2009 IPC
- 2009 IFC
- 2009 IECC

Southern Utah University Design Standards, for Mechanical Engineering, November 2005, (including steam distribution) or most current at beginning of design
Division of Facilities Construction and Management (DFCM) Design Criteria, June, 2009

AVAILABLE UTILITIES

STEAM

- Medium pressure steam from the central campus system is available. Design piping, heat exchangers and specialties for current pressure (46 psig) and potential future pressure (80 psig).
- Size steam and condensate mains to accommodate future expansion to the north.
- Reference Southern Utah University Design Standards, Chapter 8, for specific requirements for connections to or modifications of the University's Medium Pressure Steam Distribution System.
- Anticipated peak demand is 850 lbh, and service size is 2".

CHILLED WATER

No chilled water is currently available from the campus system, however, building design must accommodate potential future campus chilled water.

CULINARY WATER

Extend a 2" culinary line and an 8" fire protection line to the project site from a new 8" line. Water pressure is generally 80 psig.

SANITARY SEWER

Sanitary sewer size will be 6".

STORM SEWER

Storm water will be routed to the east.

NATURAL GAS

Only if required for desiccant regeneration. Campus distribution is 20 psig, and is available at approximately 1,000 feet to the west of the site.

Function Area	Space Name	NASF	Temp		Mech/Plumbing System Discussion
			Summer	Winter	
Entry Vestibule	Entry Vestibule	180	n/a	n/a	Heat vestibule as required to control condensation only
Grand Lobby	Grand Lobby	2,000	75 / 78	70 / 68	Consider radiant heating/ cooling in floor, with DCV
Galleries	Jim Jones Gallery	1,500	70 / 70	70 / 70	Single multi-zone air handler with common dehumidification and local humidification control. Ensure that building construction is adequate to control humidity migration Humidity set points: Jim Jones Gallery: 50% +/- 2.5% Braithwaite Gallery: 50% +/- 2.5% Featured Gallery: 50% +/- 2.5%
	Braithwaite Gallery	1,500			
	Featured Gallery	2,000			
	Digital Media Gallery	800			
Gallery Storage	Storage	200	72 / 78	72 / 68	Standard control – not exhibit storage
Museum Store	Retail Store	400	72 / 78	72 / 68	Standard control
	Museum Store Storage	150			Standard control
Public Restroom	Public Restroom	840	n/a	n/a	Exhaust at IMC 2009 minimum rate
Janitor Room - Public Side	Janitor Room	100	n/a	n/a	Dedicated continuous exhaust. Coordinate wall construction to ensure air-tightness
Offices – Private	Museum Director	180	72 / 78	72 / 68	Provide zone control and DCV
Offices – Open Workstations	Director's Assistant	144	72 / 78	72 / 68	Open floor plan. Provide 1 temperature control point / 2 people
	Volunteer's Director	100	72 / 78	72 / 68	
Administrative Support	Staff and Docent Break Room	300	72 / 78	72 / 68	Provide zone control and DCV
	Copy-Fax-Mail-Supplies	100	72 / 78	72 / 68	Provide temperature control zone as well as exhaust at the rate of 2 cfm/sf, and maintain at negative pressure relative to adjoining space
	Administrative/File Storage	100	72 / 78	72 / 68	Air supply and temperature control from adjoining space

Function Area	Space Name	NASF	Temp		Mech/Plumbing System Discussion
			Summer	Winter	
Receiving	Interior Receiving	200	68 / 68	68 / 68	Temperature control, but not humidity
	Temporary Art Storage	150			
Collection – Storage	Fire Proof Vault	150			
	3-D Collections	250	68 / 68	68 / 68	Ceramic and bronze. Humidity: 30% ± 5%
	2-D Dimensional Reserve	500	68 / 68	68 / 68	Paintings/paper Humidity: 50% ± 5%
	2-D Permanent	500			
Work Spaces	General Work Room	250	72 / 78	72 / 68	Provide ability to adjust and control humidity as needed, from no control to 50%, with standard temperature control otherwise Provide local exhaust (snorkel), and make-up provision (transfer from adjoining space) Provide bench top water
	Conservation Lab	180	(70 / 70)	(70 / 70)	
	Supply Storage	150	72 / 78	72 / 68	
Collections Storage	Registrar's Office	120	72 / 78	72 / 68	Provide zone control and DCV
	Assistant Registrar's Workstation	96	72 / 78	72 / 68	Open floor plan. Provide 1 temperature control point / 2 people
	Student Workstations	144			
	Unisex Staff Restroom	64	n/a	n/a	Exhaust per IMC 2009. Makeup from adjoining space
Classrooms	Classroom	1,500	72 / 78	72 / 68	Provide zone control and DCV
Education Administration	Education Director Office	140	72 / 78	72 / 68	Provide zone control and DCV
	Education Director Assistant Workstation	144	72 / 78	72 / 68	Open floor plan. Provide 1 temperature control point / 2 people
Education Support Spaces	Restrooms	240	n/a	n/a	Exhaust per IMC 2009. Makeup from adjoining space
Children's Studio	Art Supplies Storage Room	100	72 / 78	72 / 68	Dedicated continuous exhaust. Coordinate wall construction to ensure air-tightness

Chart A. Indoor design conditions

GENERAL REQUIREMENTS

TEMPERATURE

Reference Southern Utah University Standards, 6.2.6.

Outdoor design conditions:

- winter 0 F
- summer 97DB/62WB F

Indoor design conditions: (see Chart A, previous page)

HUMIDITY

Humidity control is required in the galleries, storage rooms and work rooms, as described in the table. Note that control of rate of change is equally important as humidity setpoint. Seasonal drift is acceptable, but daily fluctuations are to be avoided.
Reference system descriptions for specific humidification/ dehumidification system requirements.

PROJECT DOCUMENTATION

Provide a design narrative that includes the following:

- Basis of design, including all information required to prepare the design
- System description, including operating parameters and assumptions
- A description of the methods used by the design team to achieve sustainability, including the integrated design process; and a description of the results, i.e. a description of the sustainable elements included in the design. Include in this section how the requirements of this program were met.
- Results of the energy simulation, with a design energy performance standard for the building.

SUSTAINABILITY PRINCIPLES

DFCM will engage a separate Energy Specialist to perform an energy analysis of the project, according to ASHRAE Standard 90.1-2007; Appendix G. The analysis will consider reducing energy consumption in each of the following categories: lighting, space cooling, space heating, pumps, heat rejection, ventilation fans, internal loads and external loads.

The design team will be required to attend a Design and Technology Charrette, to evaluate the building design and consider technologies, including but not limited to, daylighting, natural ventilation, evaporative cooling, demand-controlled ventilation, green roof, spectrally selective glazing, low flow faucets, and on-site renewable system(s).

The design team will also identify and evaluate the suitability of any potential incentives, policies or rebates for energy efficiency and renewables, offered by federal, state, or local authorities, as well as those offered by private entities and utility companies. Of particular note is the Rocky Mountain Power FinAnswer incentive program. The design team and the Southern Utah University's Facilities Department will evaluate the effectiveness of the program's alternative paths and pursue the incentive, accordingly.

The energy analysis will be used, wholly or in part, for the basis of evaluating several energy related project requirements, referenced throughout the program document. These include demonstrating compliance with the Utah State Building Energy Efficiency Program's High Performance Building Standard – 2009 (as part of the DFCM design requirements) and estimating potential project incentives, as referenced above.

ENVELOPE/ARCHITECTURAL

- Improved Wall Insulation
- Improved Infiltration Control
- Improved Fenestration Assembly U-factor
- Improved Fenestration Assembly SHGC
- Building and/or Fenestration Shading
- Elevator Motor Efficiency

ELECTRICAL SYSTEMS & PROCESS LOADS

- Reduced Lighting Power Densities
- Lighting Occupant Sensor Controls
- Daylighting Controls
- ENERGY STAR Rated Equipment (process load reduction)
- On-Site Renewable Energy

HVAC & PLUMBING SYSTEMS

- Indirect/Direct Evaporative Cooling
- Variable Speed Supply Air Fan
- Improved Supply Air Fan Efficiency
- Improved Hydronic Pump Efficiency & Variable Speed Pump

CONTROL

- Improved Economizer Control
- Relief Air Energy Recovery
- Dedicated Outdoor Air System (DOAS)
- Demand Control Ventilation (DCV)
- On-Site Renewable Energy

PLUMBING SYSTEMS

- Waterless urinal
- Reduced flush W/C
- Metering faucet
- Solar water heating

Further reduction of process load, through proper documentation of scheduled process equipment, is also recommended as a means of achieving energy efficiency goals.

Significant reduction of lighting power density (LPD) should be assumed for most occupied spaces in the preliminary analysis, which implies aggressive use of advanced lighting technologies. As the design progresses, these assumptions may conflict with budgetary constraints, occupant requirements, and/or other owner/occupant necessities. If this case arises, shifting electrical demand/consumption away from the process load, to be used for lighting may be considered.

INTERNAL LOADS

Use the following loads if more specific design information is not available:

People:	250 Btuh, sensible
	200 Btuh, latent
Lights:	0.85 watt/ft2, overhead general
	5 watt/ft2, overhead in galleries
Equipment:	1 laptop PC per person in classrooms
	1 desktop PC per seat in offices
	1 copier per 10 people in office groups

Modify internal load calculations as required when more specific design information becomes available, in order to maintain indoor design temperatures.

VENTILATION/INDOOR AIR QUALITY

- Comply with ASHRAE Standard 62.1-2007, Ventilation for Acceptable Indoor Air Quality, for minimum ventilation requirements. Reset the outdoor air intake flow and/or space or zone airflow as operating conditions change, in accordance with Section 6.2.7 of the Standard, for the zones noted as DCV in the space summaries.
- Design a ventilation system that results in an air change effectiveness greater than or equal to 0.9 as determined by ASHRAE 129-1997. Follow recommended design approaches in ASHRAE 2009 Fundamentals, Chapter 32.
- Develop and implement an IAQ Construction Management Plan that includes the use of high efficiency filters (Minimum Efficiency Reporting Value (MERV) = 8, as determined by ASHRAE 52.2-1999), at each return air grille for systems used during construction.
- Provide MERV 5 pre-filters and MERV 13 final filters at central air handlers upon completion of project.
- In addition to toilet exhaust, provide separate exhaust system for janitor closets and dedicated copy rooms at the rate of 1.0 cfm/ft2, and demonstrate that the rooms are maintained at a negative pressure of 0.03" wg relative to adjoining spaces.

COMMISSIONING

- Reference DFCM Design Requirements for commissioning.
- Coordinate with commissioning agent retained for the project, and comply with requirements for building commissioning detailed in DFCM Solicitation for Commissioning Services.
- Environmental controls , and emergency power change-over are areas that will need specific focus during the commissioning process

MEASUREMENT AND VERIFICATION

Install continuous metering equipment for the following uses:

- Steam
- Condensate
- Domestic cold water
- Natural gas (if used)

Note that this level of Measurement and Verification may not be adequate for LEED credit.

SYSTEMS

GENERAL DESCRIPTION

- Provide central station custom or field built-up air handlers with cooling and heating coils as required to meet minimum ventilation standards. Use backward-inclined centrifugal fans with variable speed control. Locate air handling equipment indoors in a penthouse or basement mechanical room with adequate service clearance.
- Provide variable volume multi-zone air handler for collections, and variable volume single duct air distribution, with VAV reheat boxes for all other zones. Use minimum two row coils in perimeter zones, and single row coils in interior zones. Provide a ducted return air system, and use variable speed return/relief fans.
- At a minimum, use constant volume primary, variable volume secondary pumping for the heating water system, and variable volume primary only pumping for chilled water. Use redundant pumps for all systems.
- Provide HOA switches on all pumps and fans.
- Approved water treatment provider is Alpine Water Tech.

STEAM

Serve building from campus steam system, with shut off valve and vents and drains as detailed in Chapter 8 of the Southern Utah University Design Standards.

Locate building service, isolation valves and heat exchanger in basement mechanical room. Provide full-sized vent to outdoors.

Provide steam-powered condensate pump for condensate return.

Use schedule 40 pipe for steam supply, schedule 80 for condensate return.

HEATING HOT WATER

Generate building heating hot water through a shell and tube heat exchanger. Maximum allowable pressure drop on shell side of the heat exchanger is 8 ft w.c., and maximum water velocity is 7 fps.

Design heating water for 180F supply, with 40F temperature drop. Provide constant volume flow through heat exchanger, with variable volume secondary heating water distribution. Control secondary pump speed to maintain constant differential pressure setpoint.

Design heating water transport energy consumption as follows:

LoadL	Maximum Water Transport Energy (bhp/1,000,000 Btuh)	(W/gpm)
Full Load	2.50	23.3
50% Load	1.15	10.7

CHILLED WATER

Generate chilled water from two 40 ton nominal capacity air-cooled water chillers.

Approved chiller must have a factory-authorized service provider located within 50 miles of Cedar City.

Design chilled water for 44F supply and 15F temperature rise.

Provide variable volume, primary-only distribution. Provide redundancy as required to maintain gallery space temperature conditions in the event of a chiller failure.

Design the chilled water transport energy consumption as follows:

Load	Maximum Water Transport Energy (bhp/ton)	(W/gpm)
Full Load	0.05	10.9
50% Load	0.04	8.7

DEHUMDIFICATION

Provide capability to dehumidify gallery and collections air to accommodate interior and exterior latent load, using desiccant based dehumidification. Gas or electric regeneration is acceptable.

HUMIDIFICATION

Provide capability to humidify gallery and collections air supply. Steam is not currently available at all times, so alternative technologies, including electric steam injection and adiabatic cooling shall be evaluated.

Provide humidification at air handler and at individual zone level.

AIR HANDLER 1 - COLLECTIONS

Provide single custom air handler as follows:

AH-1:

- 4" double wall construction
- 15,000 cfm
- 4.0"TSP
- MERV 7 filter bank, face area = 37.5 ft2
- MERV 7 filter bank, face area = 37.5 ft2
- 2 each backward inclined, 12 blade direct drive plenum fans, 10 HP ea
- Pre-heat coil: 5/8" diameter 0.035" thick tubes, 2 rows, 6 fpi, 37.5 ft2 face area. Provide glycol (30%) through a brazed plate heat exchanger, and pump the coil
- Chilled water coil: 5/8" diameter 0.035" thick tubes, 4 rows, 10 fpi, 37.5 ft2 face area
- Direct Evaporative Media: 6" GlasDeck, stainless steel sump, 28.5 ft2 face area, with face and bypass dampers
- Reheat coil: 5/8" diameter 0.035" thick tubes, 2 rows, 6 fpi, 37.5 ft2 face area

AIR HANDLER 2 – GENERAL

Provide single factory standard air handler as follows:

AH-2:

- 4" double wall construction
- 15,000 cfm
- 4.0"TSP
- MERV 7 filter bank, face area = 37.5 ft2
- Single backward inclined, 12 blade direct drive plenum fan, 15 HP
- Chilled water coil: 5/8" diameter 0.035" thick tubes, 4 rows, 10 fpi, 37.5 ft2 face area

AIR DISTRIBUTION

Document fan sizing calculations with zone by zone load calculations Document critical path supply duct pressure loss, and show process used to review fittings and duct sizing in order to minimize fan pressure requirements.

Use automatic dampers on exhaust fans in lieu of barometric dampers. Document that transport energy consumption meets the following criteria:

Load	Maximum Air Transport Energy (bhp/1,000 cfm)
Full Load	1.0
50% Load	0.30

Require pressure testing of all duct systems in accordance with 2009 IMC Provide each space with individual room temperature control. Provide zoning plan during schematic design review that indicates proposed zoning plan for review and approval by Campus Planning staff.

PLUMBING

- Reference Southern Utah University Design Standards, Chapter 6 for plumbing requirements.
- Provide a multi-stage Pressure Reducing Valve (PRV) station to reduce campus water pressure from 80 psig to 45 psig, or minimum that will provide 35 psig to most remote fixture.
- Provide sand filter for potable water service to building.
- Provide single reduced pressure principle backflow preventer building water service entry.
- Provide softened water for all hot water, and hydronic closed system make-up. If softener is located in an inaccessible location, provide remote filling option for salt brine.
- Distribute water in Type L copper piping. PEX is not allowed.
- Waste piping is PVC below grade, cast iron above.
- Provide electric storage heaters for domestic water heating. Store and re-circulate water at 140F.
- Provide a master mixing valve at toilet rooms, located in an accessible location, with single temperature (110F) delivery to lavatory fixtures.
- Provide local mixing valves at single lavatories.
- Manual metering valves are preferred for lavatory faucets, battery operated sensor faucets are acceptable. For applications that use single handle faucet, use Moen Chateau.
- Waterless urinals (Falcon) are acceptable.
- Hands-free sensor valves for all water closets.
- All fixtures are wall-hung vitreous china.
- Prove trap primers at all floor drains.
- Provide hot and cold water hose bib at chiller, and in mechanical room.
- Design roof drainage for 4"/hour maximum intensity. All roof drains to be at least 3".

FIRE PROTECTION

- Provide fire sprinkler protection throughout building. System to comply with NFPA, campus fire marshal and building official, and IBC requirements and State of Utah Fire Marshal requirements.
- A fire pump is not anticipated, because the flow and pressure requirements can likely be met from the campus system. Conduct a fire flow analysis per DFCM criteria during the design phase to confirm this assumption.
- Provide a single interlock preaction system with electric sequential activation using smoke detectors in each of the three main galleries (Jim Jones, Braithwaite, Featured), and the collections storage areas. Four systems total.

- Provide individual floor control assembly, including zone check assembly, at each floor.
- Sprinkler Occupancy Hazard Classifications are as follows:

Office and Public Areas:	Light Hazard.
Exhibit Galleries:	Ordinary Hazard, Group 1.
Service Areas:	Ordinary Hazard, Group 1.
Mechanical Equipment Rooms:	Ordinary Hazard, Group 1.
Building Service Areas:	Ordinary Hazard, Group 1.
Electrical Equipment Rooms:	Ordinary Hazard, Group 1.
General Storage Areas:	Ordinary Hazard, Group 1.

- Minimum Density for Automatic-Sprinkler Piping Design: As follows: (Reduce Design areas with quick response heads when applicable and increase design area as required for pitched ceilings.

Light-Hazard Occupancy:	0.10 gpm over 1500 ft2. area.
Ordinary-Hazard, Group 1 Occupancy:	0.15 gpm over 1500 ft2. area.
Ordinary-Hazard, Group 2 Occupancy:	0.20 gpm over 1500 ft2. area.
Special Occupancy Hazard:	As determined by authorities having jurisdiction.

- Maximum Protection Area per Sprinkler: As follows (except as modified by authorities having jurisdiction)

Office Space:	225/400 ft2.
Storage Areas:	130/400 ft2.
Mechanical Equipment Rooms:	130 ft2.
Electrical Equipment Rooms:	130 ft2.
Other Areas:	According to NFPA 13 recommendations, unless otherwise indicated

- Components and Installation: Capable of producing piping systems with 175-psig minimum working-pressure rating, unless otherwise indicated. All piping and components are Schedule 40 minimum, and of domestic manufacture.
- Class I, standpipe system design shall be designed assuming 150 psi available at fire department connection. Pressure and required flow shall be provided by fire pumper truck.

CONTROLS

- Provide BACnet compatible Direct Digital Control (DDC) system. Reference Southern Utah University Design Standards, Chapter 6 for general DDC requirements.
- Approved controls vendors are Honeywell or Yamas.
- Integrate the mechanical and electrical systems. Provide microprocessor to microprocessor communication between the DDC and variable frequency drives, air handler(s), electrical distribution, lighting, emergency generators, UPS system and building power. Additional points shall be made available for non-mechanical/ electrical monitoring that may be required by the engineering department.
- Provide written sequence of operation on drawings for all systems controlled by the DDC system. Provide graphical representation of sequence of operations on the Building Automation System graphics.
- Label the areas served by air handlers and other fan systems on the BAS graphics.
- Provide temperature sensors at airside inlet and outlet of all terminal units.
- Provide sensor only at room thermostats. Occupants are not to have control of room temperature setpoints.
- Assume 30 zones.

electrical

CODE REQUIREMENTS

The codes and laws that apply to the electrical systems are the latest versions of the following:

National Electric Code (NEC) 2008

- International Energy Conservation Code (IECC) 2009
- International Building Code (IBC) 2009
- International Fire Code (IFC) 2009
- International Mechanical Code (IMC) 2009
- National Fire Code (NFPA) 72 2007
- American's with Disabilities Act (ADA) 1991
- ADA Application Guide (latest edition)
- Underwriters Laboratories (UL)
- State of Utah Fire Marshal's requirements R710-4
- American National Standards Institute (ANSI) A117.1

Note that Section 501.1 of IECC 2009 allows the substitution of ASHRAE/IESNA Standard 90.1 for Commercial Energy Efficiency standards.

STANDARDS REQUIREMENTS

- The additional standards that apply to the electrical systems are the latest accepted versions of the following:
  AAM American Association of Museums
- NFPA
- ANSI standards as applicable
- NEMA standards as applicable
- IEEE standards as applicable
- EIA/TIA standards as applicable to Information Technology
- BICSI standards as applicable to Information Technology
- DFCM Design Criteria – latest version
- SUU design standards

SPECIAL FIRE ALARM REQUIREMENTS

The building complex will likely be an A-3 Museum Assembly occupancy. The International Fire Code, for "A" occupancies, requires a manual system for 300 occupants or more. There is an exception that allows no manual fire alarm if the building is sprinkled with notification appliances that notify occupants during sprinkler flow. However, in the University environment, and because smoke detectors are required by the State Fire Marshall for State owned buildings, the cost of adding manual fire alarm boxes is minimal, and is normally done at the University in these types of occupancies.

The State Fire Marshall requires smoke detectors in all corridors, and in paths of egress.

The IMC requires smoke detection on fan systems, and fan shutdown.

OWNER PROJECT REQUIREMENTS

As part of the commissioning process, this Program document shall be the inherent Owner Project Requirements and define the desires of the owner. Owner Project Requirements shall be updated by the design engineer as required during the design of the project as additional information becomes available and if anything changes.

Provide a Basis of Design document along with any Owner Project Requirement updates to the commissioning agent.

POWER SERVICE TO NEW FACILITY

The new facilities shall be designed for 26 watts per square foot minimum.

The IECC and ASHRAE 90.1 rules required lighting loads will not exceed 1.1 watts per square foot using entire building method. Display lighting for exhibits in galleries, museums, and monuments are exempted out of the calculation according to IECC 505.5.1 Exception 3, but must be added as actual load to the watts/square foot requirements as well as calculated in the service calculations according to the NEC.

SUU requires spare capacity of 50% calculated load:

LOADS	CONNECTED LOAD	DESIGN W/SF SPARE 50%
GENERAL LIGHTING	1.1 (or less)	1.65
GALLERY LIGHTING	5 (or less)	7.5
RECEPTACLES	1.5	2.25
HVAC	10.4	15.6
ELEVATORS	1	1.5
MISC	1	1.5
TOTAL	20 W/SF	30 W/SF

The designer may choose either a 277/480 volt service, or 120/208 volt service, or both. If gallery lighting is generally 277 volt, the 277/480 volt service is desireable as it will be economical to operate with minimal step-down transformer load. However, if gallery lighting is traditional incandescent, 120 volt lighting will dominate with traditional plugload, and therefore only HVAC can utilize 480 volt power. In this case it may be economical to run the service at a larger amperage 120/208 volt system. Two service transformers are an option, one at 480, and one at 277, which avoids dual losses of step-down transformers and could be a way to keep the building sustainable.

The service can originate from a switch near the J.L. Sorenson Physical Education Building. It is the intent of this project that all infrastructure to feed future buildings in this new quadrant on campus shall be planned for, therefore a new utility tunnel will be extended. The power will remain outside of the utility tunnel, but may share the dig. Multiple 4 inch conduits are required for future spare ducts, minimum of (4) 4 inch conduits along main duct pathway.

The current 3 way G&W VFI switch located at the PE Building should be replaced with a new 5 way switch, the 3 way will be relocated to the location of the new building service.

A new 5-way vault mounted vacuum fault interrupter (VFI) switch, with solid dielectric medium, is preferred over an oil switch. The procurement of such switches must be discussed with the DFCM representative and follow state purchasing guidelines as competition of both styles is limited. Bidding two styles of switches against each other is not recommended, as there is a major cost difference between the two styles and oil would automatically win. Please note that SF6 gas switches and fused switches are not acceptable.

A new transformer(s) should be installed to serve the facility. The transformers must be screened from the public view. If located near the generator, a concrete or masonry "blast wall" shall screen the generator from any possible arc flash of the transformer.

The designer shall include a selective coordination study for the medium voltage service, to determine the overcurrent protection settings at the vacuum fault interrupter. The contractor shall adjust the overcurrent protection settings as part of the commissioning process.

Conduits running from the manholes to the building switch, and from the switch to the transformer shall be 4 inch PVC, with 10 feet of PVC wrapped rigid conduit where entering the manhole, penetrating building foundation wall, or exiting from underslab to transformer. Where medium voltage is installed inside the building, conduit shall be rigid, 5 inch size conduit, painted red and labeled according to the NEC. Provide at least one spare conduit in all new runs.

POWER SERVICE ACCESSORIES

Digital Metering equipment shall be provided at main service switchboard. Metering shall be compatible with a future campus wide monitoring system. Provide conduit from the switchboard to the nearest telecmmunication closet and label conduit "FUTURE METER NETWORK"

Phase failure protection shall be provided for motor circuits.

Transient Voltage Surge suppression shall be provided at the main switchboard and the emergency switchboard, and at other selected locations through the facility as determined by the design engineer.

POWER DISTRIBUTION

Electrical rooms in areas of the building exceeding one story shall be stacked where possible to facilitate future changes and minimize the initial cost of feeder runs. Closets shall be centrally located to minimize branch circuit distances. No point in the building shall exceed 150 feet to the nearest electrical panel, preferably most circuits shall be less than 120 feet to the nearest panel. Electrical closets shall have unused wall space for future growth, minimum of 30% free wall space.

All power distribution feeders shall be in conduit, with copper conductors, full size neutrals, with equipment ground conductors. Power panels shall be located within electrical closets, not within hallways or gallery spaces. Electrical service shall be located as near as possible to the largest mechanical loads, for efficiency and cost savings.

All outlet circuits shall have dedicated neutrals with single pole breakers. Shared neutrals with two and three pole breaker handles are not allowed.

All circuits shall be designed so there is no more than 5% maximum voltage drop from the main service entrance to the outlet or device. It is preferred that the feeder have no more than 2% voltage drop, and the branch circuit no more than 3% voltage drop, at maximum connected load. This may be accomplished by increasing wire size, or minimizing distance of the feeders and branch circuits, as appropriate.

Power panels for receptacle power shall be separate from panels feeding mechanical and lighting loads to allow for easy, separate metering as required by the IECC and/or USGBC LEED M&V points (if selected). Separation will also reduce harmonic transfer between building mechanical loads and receptacle power.

VARIABLE FREQUENCY DRIVES

The electrical designer, not the mechanical designer shall specify the Variable Frequency Drives. Exceptions may be allowed with prior approval from DFCM/SUU for certain packaged units, however, specifications of the mechanical and electrical designers shall match as to harmonic control and accessories.

EMERGENCY POWER

Base bid Emergency Power shall be a battery system. For Battery based systems, designer shall avoid individual battery packs within fluorescent luminaires. Batteries that are of the self contained "bug-eye" type are preferred by maintenance. However, SUU may be willing to consider central battery systems, which could simplify the design of the base wiring systems and future building phases if generators are chosen in phase 2 as an Additive Alternate, a new diesel generator will be designed. If the diesel generator Alternate is accepted, the designer shall ensure current EPA TEER limits are specified and will assist in Air Quality permitting. The generator will run egress lighting, and all information technology equipment inside the MDF/IDF rooms including HVAC inside the telecommunication rooms.

The generator may be located in the transformer yard area, screened from public view. Consideration shall be taken to control noise to at least 15 dB.
The tank shall have a minimum of 24 hours of backup fuel at 100% rated load.

A minimum of two ATS switches is required, one for life safety egress lighting, and the other for auxiliary equipment such as the telecommunications closets.

Wiring and communication shall be run to the Building Automation System to monitor fuel storage, battery, oil and generator run status.

ON SITE RENEWABLE ENERGY

It is desired to have photovoltaic system, either stand alone panels mounted on the roof, or a system integrated into the building envelope such as integral glass systems, thin film systems, or other system compatible with the building. Stand alone panels are currently the most efficient photovoltaic technology in terms of watts per square foot of panel systems.

Any photovoltaic system installed on the roof shall consider fall protection if within 10 feet of the edge of the roof, visual impact, roof maintenance and repair, wind loading, structural loading, impact of snow, and other factors. Careful coordination with the campus will be required to ensure facilities agrees with the concepts. Structural elements penetrating the roof to hold the panels are preferred instead of ballasted systems.
There are large trees to the south of the construction site. Care shall be taken so that these trees do not impact the photovoltaic system during winter months when the sun is low in the sky. This is particularly important if photovoltaic systems are used in south facing glass or in single story construction on the roof.

The amount of on-site renewable energy is heavily dependent on available budget and available locations on the building to place panels. The design team shall strive to maximize the amount of renewable energy used in balance with the project budget. LEED points should be anticipated from this effort.

UPS SYSTEMS

It is expected that small, centrally located UPS system will be provided to feed power to the MDF and IDF rooms as part of the FF&E package to backup telephone and data systems for the building.

OUTLETS

The number and location of outlets shall be coordinated with each space with users and comply with their needs and requirements.

GFI outlets shall be provided for all vending machines and for break rooms, restrooms, roof outlets, and other locations within 6 feet of a sink.

Provide dedicated outlets for all copy machines, laser printers, vending outlets, microwaves, and other high-use equipment.

Provide at least one outlet in each storage and mechanical closet.

LIGHTING

Wherever possible, the designer shall utilize long life, energy efficient lighting solutions. Four foot T8 or T5 fluorescent lamps, with electronic ballasts, are preferred. T8 lamps shall be premium, greater than 3100 lumens. T8 ballasts shall be premium, high efficiency, with ballast factor less than 0.8.

For smaller fixtures, compact triple tube fluorescent lamps are preferred. Incandescent lamp sources shall be minimized and avoided if possible, except where required in the museum gallery spaces.

Where specified, long life low voltage halogen sources, or dimming systems that extend life of the lamps and save energy, are preferred.

The director is highly interested in solid state lighting systems. The program team has discussed some problems with LED systems currently available, however, in this rapidly expanding technology fixtures are getting better every year. They have relatively low efficacy (lumens per watt), but utilized lumens per watt (lumens usable outside of the fixture) is high due to the directional source. Color rendering and end of life replacement are also some issues.
LED solid state systems may be considered, but must be approved by the campus prior to specification. LED solutions with replacable lamp and ballast modules are preferred to throw-away LED fixtures. Careful consideration of color rendering, matching of batches, and possible sample fixtures shall be presented to the owner to try in the existing gallery or a mock gallery prior to specification of LED sources for gallery use. Avoid the use of two separate manufacturer products in all galleries.

Lighting solutions shall incorporate automated controls per the latest version of the energy code. This can be timeclock switching systems in public areas, and/or occupancy based switching systems in public and private areas. If occupancy sensors are used, an override switch mounted on the wall will allow the user to turn off the lights for appropriate presentations. In addition, if the occupancy sensors fail, the University can have the immediate option of bypassing the sensor and using the switch only for control purposes. Dual technology occupancy sensors are preferred to help prevent false off and false on operation of the lights. Design Engineer shall include commissioning specifications in the design to commission all lighting control systems, and provide required owner training.

Daylighting controls may be considered in selected areas of the facility. In the teaching rooms, preset dimming and lighting controls, integrated with audio/visual touchscreen, shall be provided. If windows are included, they shall also have motorized operators tied to the touchscreen. Electrical designer shall carefully coordinate with Technology designer to ensure smooth, problem free, operation.
In the teaching rooms, zone control shall be provided to allow lights at the front near the projection image to be dim or off, while adjacent whiteboards can be partially or fully illuminated to provide dual function teaching. This method requires at least 3 lighting control zones, and preferably 4 lighting control zones as follows:

General classroom illumination (away from projection screen)
Lighting on whiteboard
Lighting on projection area for whiteboard use (when projection is off)
Other zones as suggested by the lighting designer, for example, perimeter walls, aisles and pathways, etc.

Dimming should use fluorescent or solid state sources rather than incandescent for maximum life and energy savings.

Provide egress illumination and illuminated exit signs complying with all required codes. As a minimum, 1 footcandle shall be provided for all egress pathways. In addition, provide some illumination on backup generator power in public restrooms, mechanical rooms, electrical rooms, and communications closets.

Local Site lighting in the parking areas north and west of the building site shall be relocated to feed from this building and the power company service north of the construction site shall be demolished. For all site

FIRE ALARM SYSTEMS

The fire alarm system will consist of manual pullstations, smoke detectors down corridors and paths of egress, and smoke detection on the fan systems exceeding 2000 CFM. Speaker based notification devices will be provided per code guidelines. Sprinkler system will be monitored for flow and tamper. The elevator shall be recalled according to ANSI guidelines.

GROUNDING

Provide grounding equipment conductors in all feeder and branch circuits. Conduit ground is not acceptable. Provide an additional isolated ground conductor in all 120/208 branch power panelboard feeders, complete with isolated ground bus.

Provide grounding riser system for all telecommunications closets, complete with grounding bus bars.

LIGHTNING PROTECTION SYSTEMS

The designer shall provide a full lightning protection analysis per NFPA guidelines. It is anticipated that with the importance of the facility, high value of artwork, a prominent location, and the overall square footage of the facility, the analysis may suggest a lightning protection system be added to the project. The final cost of such a system depends heavily on the construction materials used on the facility. The designer shall consult with the owner to determine if the system is desirable based on the budget.

CLOCKS

Provide battery operated, radio frequency self correcting clocks in all public areas except galleries. Ensure that no FCC licensing requirements are required for radio frequency self corrected clocks.

Designer shall ensure that repeaters are located within the building (or integral to clocks) so that signal reaches each specified clock location.

SUSTAINABLE PRINCIPLES

It is desired that where economically feasible, sustainable practices and design shall be employed. The state will require this to be LEED silver, at a minimum. Many of the above system descriptions already use energy efficient design practices. The designer shall meet with the DFCM energy coordinator and meet all requirements of the DFCM energy standard.

Electrical designer shall include all commissioning requirements in the electrical specifications required for measurement and verification.

The lighting design is targeting 20-25% better than code for lighting energy density outside of the museum gallery lighting space.

As stated previously there may be daylighting controls within some of the spaces adjacent to exterior windows and clerestories to take advantage of free and efficient daylight when available; although, it is unlikely that sufficient daylighting controls will be provided to earn the LEED credit for daylighting. The lighting layouts and fixture selections will aid in reducing light pollution from interior light sources as well as aid in reducing sky glow from exterior sources.

information technology

TELECOMMUNICATIONS SERVICE TO NEW FACILITY

The contractor shall provide all infrastructure, including conduit, tray, and cabling, to extend services to the new building. The cable work will NOT be provided by the owner.

The data fiber optic service to the new building shall be obtained from from either the Electronic Learning Facility, or the Sharwan Smith Student Center. Tunnel access is available from both facilities to the PE Building. Extend fiber through the new tunnel to the new Art Museum.

Analog phone lines shall be extended from the PE building, where many lines are unused, through to the Art Museum. A minimum of 25 pair is required.

Cable TV is desired in the facility. This can be extended with an amplifier from the PE building through the tunnel system.

TELECOMMUNICATIONS TRUNKLINES WITHIN NEW FACILITY

It is proposed that a new Main Distribution Frame closet (MDF) be located either on the ground floor or a basement floor. A cable/tray and conduit link shall be connected through the facility for complete homerun of all cables. J-hook method of support is not allowed. Care shall be taken to provide full access to the tray system at all bends and all locations where conduit enters the tray.

Each new Intermediate Distribution Frame (IDF) room shall be connected to the new MDF via cabletray/conduits.

TELECOMMUNICATION MDF AND IDF ROOM REQUIREMENTS

Where the building exceeds one story, the new IDF rooms shall be stacked with the new MDF to minimize cable distance and provide flexible future growth. Rooms shall be centrally located, to ensure no workstation cable is longer than 280 feet to any point within the facility. Where required, provide additional IDF closets to ensure that cable length is minimized and meets the standard. At a minimum, provide one MDF/IDF room per floor.

MDF and IDF rooms shall be directly accessable from the hallway, access through teaching spaces or offices is not acceptable.

MDF minimum size shall be 150 square feet suitable for a maximum of 6 floor racks. IDF minimum size shall be 120 square feet, suitable for a maximum of 3 floor racks plus appropriate wall space.

A dedicated HVAC cooling system shall be provided in each MDF and IDF rooms that can run 24 hours per day, 365 days per year.

Each new telecommunication MDF and IDF shall be on Emergency Generator including all outlets. UPS will be provided by the owner. HVAC shall be on generator backup only.

All walls of MDF and IDF rooms in the new building must be covered with ¾ inch by 8 foot high plywood, painted with fire retardant paint. The plywood shall be used to mount copper voice cables, fire alarm, and security CCTV systems.

All MDF and IDF rooms shall have appropriate grounding, and grounding bus, tied back to the power service ground. Provide grounding jumpers to all metal raceways entering the closet. Provide spare holes on grounding bus for campus IT services to ground their equipment.

Each MDF and IDF shall have card access, and be monitored with a CCTV camera system, as per standards.

HORIZONTAL WORKSTATION CABLING REQUIREMENTS

Cable tray or conduit homeruns shall distribute horizontal cabling throughout the facility. Open plenum wiring and j-hooks will not be allowed. Minimum size conduit shall be 1 inch.

Wireless access outlets shall be provided so there is reliable wireless access points in all student study areas and teaching areas.

CODE BLUE PHONE SYSTEM

Provide a centrally located Code blue telephone pedestal for emergency access for students, faculty and guests in the immediate vicinity of the building. The site shall be highly visible and accessible along major pedestrian pathways. Locating it between the parking areas and the building, or between the parking areas and the crosswalks to the Shakespearean festival area is desired. The contract shall purchase the phone pedestal and provide required wiring and telephone access. Wireless systems are not desired.

CABLE TV

A cable TV broadband RF system is anticipated throughout the facility, including to all instructional labs, classrooms, conferences, and private offices. Provide appropriate coaxial cable, amplifiers, taps, and other equipment for a complete system.

AUDIO VISUAL

An audio visual system is required and detailed in a separate section. The electrical contractor shall provide conduit systems and power required for the A/V system. Carefully coordinate the design with the A/V designer to ensure capacity and locations are covered with appropriate raceways.

SECURITY NARRATIVE

A highly visible perimeter should be maintained around the building, accomplished with proper lighting and landscape design that creates a secure environment. Due to exposure and access of the site to a major intersection and the Shakespearean Festival, transient traffic creates a concern for tailgating through secure doorways. Access doors shall be located outside of the immediate transient traffic to help avoid tailgating.

Interior and exterior lighting in public areas shall be vandal and tamper resistant. Lighting levels shall be enough to deter crime, but yet avoid annoying adjacent traffic, pedestrians and adjacent properties.

Door latches are preferred to be electric latch rather than electric strike.
Card Access and Security Systems

Card Access systems will be specified on select doors, including telecommunications MDF and IDF rooms.

CCTV cameras shall be provided inside near exterior exits, near telecommunications MDF/IDF closets, and public gathering spaces and elevator lobbies. CCTV cameras shall be located inside each gallery space.

In addition, CCTV cameras will be provided on the exterior, in weather housings, to view major sitelines of the exterior.

CCTV Exterior housings shall have power for weather accessories, defoggers and/or heaters to ensure a clear vision path.

Include door alarms in collections areas.

acoustical

GENERAL

Acoustic solutions shall be designed into this project to reduce the unwanted noise and vibrations along with having the correct amount of reverberation time in each space. The acoustical design shall comply with all Southern Utah University Campus Standards.

BUILDING PLANNING

Noise producing areas such as mechanical rooms or restrooms shall not be adjacent to noise sensitive areas next to galleries, meeting rooms, class rooms, or study areas. Non-sensitive areas like storage rooms shall be placed in between the noisy areas and the sensitive areas.

BUILDING SERVICE NOISE

Major mechanical and electrical devices shall be carefully located and have vibration isolation to reduce the structurally transmitted noise that will travel throughout the building. The mechanical ducting and piping shall be designed to reduce the airborne noise and cross-talk in the occupied spaces. NC (noise criterion) 25 – 30 shall be the maximum in galleries, conference rooms, class rooms, and study areas. Offices shall have an NC of 25 – 35. Corridors/lobbies shall have an NC of 35 – 40.

OCCUPIED AREAS

The ceilings shall have a lay-in acoustical ceiling or a gypsum board ceiling with glue on acoustical tile. Both ceilings shall have a NRC (noise reduction coefficient) of 0.7 or greater and a CAC (ceiling attenuation class) of 35 or more. Floor coverings shall be carpet to reduce the noise created from foot falls. Walls in larger spaces shall not be parallel to reduce the flutter echo. This is difficult to achieve so other factors to accomplish the same result should be considered, such as:

1. Articulate the shape of the room with acoustical considerations in mind (i.e. not square or round)
2. Reduce the amount of hard reflective surfaces, break up wall expanses, and avoid a dome or reflective ceiling treatment

Insulation of the walls and ceilings shall have a Sound Transmission Class (STC) of 50 with an Impact Insulation Class (IIC) of 50. Folding partitions and the wall above the header shall have an STC that matches the folding partition. The wall studs shall be on 24 inch centers. Reverberation time shall not exceed 0.7 seconds.

audio/visual

GENERAL

Audio and video systems will be specified for installation as part of the building construction work. Audio and video systems will be specified for full compliance with any Southern Utah University Campus Standards.

GRAND LOBBY AND RECEPTION AREAS

The grand lobby, reception areas, and other areas as designated by the owner will have flat screen displays capable of custom, campus digital signage. The displays will have an on-board computer with capabilities similar to the Samsung 460EXN.

A building wide paging system for museum closing announcements will be provided with a microphone at the front desk along with a remote control. This sound system will also be zoned for paging in the different areas and as standalone public address in those areas.

The equipment shall be similar to: microphone = Shure MX418, DSP = BSS BLU 100, amplifier = Crown CTs 8200, speakers = Atlas Sound FAP62T, rack = Middle Atlantic SR40-28.

EXTERIOR PRE-FUNCTION

Exterior speakers shall be provided with a RF wireless microphone as part of the zoned sound system.

The equipment shall be similar to: wireless microphone = Shure ULXS 24/58, speakers = Sound Tube XT850.

GALLERIES

Each gallery shall be equipped with an IR wireless microphone and IR assisted listening system. Solid state recordings of the gallery lectures shall be required. The controls for recording shall be by a remote control in each gallery.

Power for portable media installation should be provided.

A personal tour guide system shall be provided. The charging/storage shall be at the front desk. The content will be produced and maintained by the university.

The digital media gallery shall have (6) six parabolic speakers that can be moved to any place on the ceiling to support the digital graphics displayed in this room. Portable flat panel video monitors and projectors/screens will be provided by the university but require infrastructure to support the flexibility of the shows.

The equipment shall be similar to: IR wireless microphones = Listen, DSP = BSS BLU 100, remotes = BSS SW9012US, amplifiers = Crown CTs 8200, speakers = Atlas Sound FAP62T, parabolic speakers = Sound Tube FP 6020, assisted listening system = Listen LS-81-01-WH.

A data closet for the equipment is required.

CLASSROOMS

The classrooms will be provided with fully integrated audio, video, and control systems similar to Extron Polevault. Audio systems will amplify the spoken word from presenters, as well as amplify program audio originating from media source playback devices such as computers, Blu-ray and DVD players. The spoken word originating from presenters will be captured using wireless microphones. The audio signal will be processed and amplified to an appropriate speaker system. Several media source devices and inputs will be provided and housed at each permanently installed lectern. These devices will include, but not be limited to, permanent computer, portable computer, a Blu-ray, and DVD player, a document camera.

Tension cabled, electric roll up projection screens with high definition grey material shall be sized for all viewers with average eyesight to read text from any seat. Use AV industry wide accepted mathematical formulas to determine appropriate image sizes. Locate them in close coordination with seating layouts to assure appropriate viewing sight lines. Provide projectors with a minimum native resolution 1920 X 1080 (High Definition) with an aspect ratio of 16:10. Include all video system calculations in the construction drawings.

Provide a wireless assisted listening system in compliance with the Americans with Disabilities Act.

The equipment shall be similar to: Extron PoleVault system, projector = Panasonic PT-DZ6710, screen = Draper Premier 101647.

civil

FIRE PROTECTION

The SUMA site is supported by the existing Cedar City water system. Water line sizes and approximate flow information is as follows: (Flow data was provided by the Cedar City Fire Department).

- University Boulevard (Center Street): 4" dia. ductile iron water line. 1,200 gpm.
- 300 West Street (to the East): 4" dia. ductile iron water line. 1,658 gpm.
- Harding Ave. (to the North): 6" dia. ductile iron water line. 1,640 gpm.

Fire Protection service requires a minimum flow rate of 1,500 gpm. The proposed building will be serviced by a new 4" or 6" diameter Fire Protection line connected to the existing water line in 300 West Street. The existing water line in 300 West Street may need to be upgraded to an 8" diameter water line along the project frontage at the time of construction.

It is anticipated that one new site fire hydrant will be included in this project.

Cedar City Fire Department contact information:
Mike Phillips, Fire Marshall
PH: 435-586-2964

POTABLE WATER

Potable Water service to the new building will be serviced by a new culinary water line connected to the water line in 300 West Street as described in the Fire Protection section above.

A new water meter will be installed on the service line per Cedar City Water Division specifications and impact fees for the new connection will be required.

Cedar City Water Division contact information:
Robbie Mitchell, Water Superintendent
PH: 435-586-2968

FUTURE WATER LOOP

A future water line loop would connect the existing 6" dia. fire hydrant line located at the Eastern side of the Physical Education building to the West of the project to the water line in 300 West Street. This looped system would run adjacent to the proposed underground utility tunnel.

The future water line loop is not a part of this project.

SANITARY SEWER / WASTE WATER

The SUMA project will be serviced by a new 4" or 6" diameter PVC sanitary sewer lateral line connected to an existing 10" diameter sewer main in the center of 300 West Street.

It is not anticipated that the SUMA project will include a food preparation component and the sewer service will not require a grease interceptor or sampling manhole.

Cedar City Wastewater Division
Darrell Olmstead, Wastewater Superintendent
PH: 435-867-9426

NATURAL GAS

The Southern Utah University campus has a master metered natural gas system. If needed, a new natural gas connection will be made at the South side of Center Street approximately 1,000 feet to the west of the project site.

UTILITY TUNNEL

The University provides steam, condensate, data, telecom and other utilities to the buildings on campus in an existing buried concrete tunnel system. The existing utility tunnel at the east side of the Physical Education building will be extended approximately 700 feet east to the SUMA building.

The tunnel will be constructed with approximately 8'x8' rectangular precast sections or cast-in-place concrete and will include one manhole access point at the midpoint of the new tunnel section.

SITE GRADING & DRAINAGE

The SUMA project site is mostly asphalt paved and does not have a piped storm drain system. The site slopes from the southeast corner down to the northwest.

Collapsible soils are known to exist at the Southern Utah University Campus. Design and site construction must include measures to minimize surface waters from infiltrating the soils around building footings and foundations.

Grading around the proposed building will be designed to slope away from the building a minimum of ten horizontal feet. Roof down spouts will need to extend out away from the building.

Minimal new paving is included in the project. Asphalt patching, concrete paving, crushed stone and paver systems may be included around the new building and will be designed to direct storm water runoff away from the new building.

Landscaped spaces will be utilized to treat and collect storm water runoff from the roof and pedestrian areas.

SUSTAINABILITY PRINCIPLES

- Construction Activity Pollution Prevention: An erosion control plan will be included in the design documents.
- Storm Water Design, Quantity Control: Storm water run-off from the new roof and plaza/pedestrian areas will be directed to landscaped and infiltration areas away from the building structure to limit the quantity of runoff to pre-development conditions.
- Storm Water Design, Quality Control: Storm water run-off from the new roof and plaza/pedestrian areas will be directed to landscaped areas away from the building structure to an infiltration system. Infiltration provides treatment of runoff water.

landscape

SITE AND LANDSCAPE ANALYSIS AND IMPLICATIONS

The proposed site of the Southern Utah Museum of Art is located on the northeast edge of the SUU campus, on the northeast corner of the block intersecting University Boulevard and N. 300 West. This intersection is a major entrance point into campus, and an important city/campus gateway.

The J.L. Sorenson Physical Education Building is located on the same campus block, several hundred feet to the west. A large parking area and an antiquated swimming facility slated for demolition separate the two uses. Utah Shakespearean Festival facilities are located southeast of the Museum and the main campus is located on the block to the southwest. The SUU Alumni House is located east of the Museum site across N 300 West Street. The neighborhood north of the Museum is dominated by single-family homes occupied primarily by renters. The neighborhood to the east is dominated by a mix of low-to-medium density residences closest to the museum, transitioning to mixed use and commercial uses as one proceeds further east toward Main Street and the city core.

Vehicular access to the museum is from N. 300 West, University Boulevard and Harding Avenue (W. 100 North), the latter street defining the northern edge of the museum block. N 300 West Street and Harding Avenue are slated to provide vehicular access to a proposed visitor and staff parking lot immediately north of the museum site. This parking lot will also include the service entrance for the museum, and is earmarked to accommodate the future expansion of the museum building.

University Boulevard will continue to provide vehicular access to a visitor parking lot west of the museum site. This lot will be slightly reconfigured to accommodate the new museum, including and a bus loading area immediately west of the building. The west parking lot is slated to be the site of the Phase II museum facility at some time in the future.

Pedestrian access to the museum is provided via sidewalks lining the adjacent streets, and along a mid-block pedestrian walkway that extends west-to-east from the museum site to the Sorenson Physical Education Building.

Elm trees of varying health and maturity are located in park strips lining N 300 West and University Boulevard. These trees dominate the existing landscape character of the site. A large and beautiful specimen elm is located near the corner of University Boulevard and 300 West, and is slated for preserved and protection. The remaining museum site is a mixture of asphalt parking lots to the south and east; narrow strips of landscape buffer plantings along 300 West and University Boulevard that are intended to screen the parking lots from the roads; and turf/shrub plantings around the dilapidated swimming pool facility northeast of the museum. It is assumed that the portions of the existing parking areas slated to remain will be reconfigured to maximize the efficiency of the parking areas. Similarly, it is assumed that the reconfigured parking areas will also be upgraded with shade trees, pedestrian facilities and water-conserving landscape treatments when complete, as part of meeting LEED Gold Certification and the general sustainability goals of the project.

The main campus area south and west of the museum is characterized by small scale, two-and-three-story buildings; pedestrian-oriented paths and spaces; and informal but mature landscaping. The campus is dominated by large expanses of asphalt parking interspersed with trees and landscaping around the perimeter.

GENERAL SITE AND LANDSCAPE PRINCIPLES

In addition to the documentation and analysis of the existing site conditions, a range of existing studies, plans and information were reviewed to better understand the role of the museum and to formulate a corresponding landscape program for the site. The following is a summary of the key findings and the General Site and Landscape Principles which resulted.

- The Southern Utah University Campus Master Plan (2008) was reviewed to ensure the museum building and the surrounding landscapes are coordinated with the overall campus design. The following is a summary of the key campus relationships to be considered when designing the outdoor environment of the Southern Utah Museum of Art include the following:
    - Campus Access Points and Gateways
    - Streetscapes and Campus Perimeters
    - Campus Landscape Zones and Open Spaces
    - Campus Parking Layout and Vehicular Circulation
    - Pedestrian Circulation Patterns and Systems
    - Building Entry Zones and Pedestrian Connections

- Art Walk, Monuments and Furnishings
- Signage and Wayfinding
- Alternative Transportation (Bicycle Trails, CATS Bus Stops, & Associated Facilities)

- The Cedar City General Plan Update (2009) and the Southern Utah University Campus Master Plan (2008) designates 300 West as a "University Gateway Street" because of its connection to 200 North, which is a primary access road from nearby Interstate-15. The intent is to create an attractive streetscape and gateway treatment at the intersection of University Boulevard and N 300 West Street, thereby helping to identify this as a major entry into the campus. The plans also call for the development of a critical connection into campus from Main Street along University Boulevard (Center Street). Cedar City and the SUU both envision the formation of stronger pedestrian and vehicular connections between activities that occur on campus to the hospitality and retail services available on Main Street.
- The corner location of the museum highlights the connection with the adjacent intersection and highlights the importance of the specimen elm tree as part of the visual and entry experience from the street. In addition to providing a strong visual connection from the intersection, the streetside plaza should create a pleasant entry experience for people entering campus from along 300 West or University Boulevard.
- The plaza should take advantage microclimatic conditions such as solar access, shading and seasonal winds.
- Determination of appropriate plant material is a critical task when developing site and landscape treatments. The United States Department of Agriculture (USDA) provides plant hardiness maps for all areas of the country, which are based in large part on the elevation of particular regions. At an approximate elevation of 5,835 feet above sea level, the SUU campus is located in USDA Hardiness Zone 5; plant materials and planting techniques should acknowledge this condition.
- Other General Site and Landscape Principles to be considered include the following:
  - Designing the site receive credit for Water Efficient Landscaping credit as part of the LEED Gold Certification. Important concepts to consider for achieving this goal include the following:
    - Limiting the use of lawn and turf or avoiding altogether;
    - If lawns are necessary, utilizing alternative turf types that require less water;
    - Maximizing surface areas that require little or no supplementary irrigation;
    - Applying "water-wise" and drought-tolerant planting treatments;
    - Utilizing native and adapted plant species that require little supplementary water;
    - Applying regionally-appropriate planting and irrigation techniques;
    - Coordinating landscape maintenance and irrigation with campus routines and standards; and
    - Including water monitoring systems as part of the landscape design and maintenance routine.
  - Provide a coordinated system of hard surfaces, plant materials and furnishings to provide order and help ensure that the site is coordinated with the overall campus landscape design.
  - Ensure that the site and landscape design is on par with the building.
  - Design the site and landscape in a manner that anticipates future growth and change.
  - Incorporate a system of integrated paths and pedestrian amenities to encourage walking and biking on campus.
  - Develop outdoor landscape spaces that are hierarchical and interconnected.
  - Provide a range of outdoor spaces to accommodate meeting, gathering, seating, outdoor dining and instruction.
  - Develop social gathering spaces near building entries that are both functional and pleasant.
  - Utilize landscape forms and concepts that respond to the programming needs of the building while respecting the forms and concepts of the existing campus.
  - Utilize landscape treatments that are sustainable and which conserve resources.
  - Reduce solar heat gain through the use of light-colored paving surfaces and the generous use of shade trees. The provision of shade over 50% of the site can result in an

additional point toward LEED Certification.

- Preserve existing trees and other landscape features to the greatest degree possible.
- Include educational, directional, and interpretive signage to strengthen the image of the Southern Utah Museum of Art as part of the Southern Utah University campus.
- Integrate and enhance parking areas and service zones through the use of appropriate landscaping approaches and the generous use of trees.
- Provide a coherent transition between the Southern Utah Museum of Art and adjacent traditional campus areas.
- Coordinate with local law enforcement agencies to ensure the landscape design meets Crime Prevention Through Environmental Design (CPTED) principles.
- Provided a range of site amenities including comfortable furnishings and well-lit outdoor spaces.
- Provide clear indication of access and arrival from the adjacent road and parking lots.
- Develop parking lots that are inviting and pleasant.
- Ensure compliance with the Americans with Disabilities (ADA) regulations and other health, safety, and welfare requirements.
- Provide a range of smaller nooks, meeting places, outdoor teaching spaces nodes, niches, and comfortable seating areas within and along the edges of the entry plazas.

GENERAL SUSTAINABILITY PRINCIPLES

- Develop the site and landscape of the Museum in a manner that conserves resources and is energy efficient, durable and minimizes maintenance.
- Incorporate native and regionally appropriate landscape approaches that conserve water.
- Reduce the Urban Heat Island Effect through the use of light colored paving and generous use of trees for shading.
- Incorporate appropriate site design concepts which will help meet LEED Gold Certification.

SPECIFIC DESIGN PRINCIPLES: LANDSCAPE ZONES

As illustrated in the accompanying diagram and listed below, the Southern Utah Museum of Art site is divided into ten distinct landscape zones. The descriptions which follow detail the specific issues and needs of each zone, and the corresponding design principles to be applied for each.

A. Museum Plaza & Sculpture Garden
B. Community Connection Node
C. Visitor Connection Node
D. Green Transition
E. University Boulevard Frontage
F. N. 300 West Frontage
G. Harding Avenue Frontage
H. North Parking and Service Area
I. West Parking Area
J. Playing Fields

A. MUSEUM PLAZA & SCULPTURE GARDEN

The Museum Plaza is the primary access point for users arriving by vehicle, foot or bicycle. The plaza links the building with the campus, and is a place to meet and gather. Since the museum is envisioned as a "four-sided" building, the plaza provides a suitable setting on all sides of the building while providing opportunity to reinforce the importance of the main entrances from the street and north parking lot.

The plaza also provides the setting for a Sculpture Garden. It is envisioned that sculptures will be located throughout the plaza, reinforcing the democratic function of the space. Key sculptures should be carefully located to helping visitors find their way to the building entrances.

It is important that shade and ornamental trees be provided in the plaza to mitigate heat during hot summer months, thereby providing comfortable respites for sitting, meeting and enjoying the ambience of the building and sculptures. Since the plaza is larger toward the hot and sunny southwest corner of the site, it is assumed that the majority of trees will be located in this part of the plaza. One idea to consider is the formation of small groves rather than following geometric layouts or locating trees along linear axes. Groves of trees can help reinforce the sense of arrival at a cool and inviting place.

The landscape treatment where the edges of the plaza meets the parking areas should focus on ground plane treatments and small planting areas, and the minimal use of trees. The edges toward the two streets should also be left relatively open, thereby emphasizing the large and mature existing trees that will be retained. It is critical that the signature elm near the southwest edge be preserved and incorporated into the design of the plaza.

The museum plaza should include seating for 30-50 people, bicycle parking for approximately 20 cyclists, and should be enhanced with special paving treatments and ground surfaces. Plaza plants should include a higher concentration of ornamental grasses, perennials, vines, and groundcovers than other areas on campus, and few evergreen trees. Pedestrian-scaled outdoor lighting should be provided that is attractive, functional and consistent with lighting elsewhere on the campus. Landmark sculptures and/or environmental art expressions should be provided to help distinguish the space and create a "sense of place". Signage should be provided to enhance pedestrian wayfinding and orientation, utilizing existing campus standards.

B. COMMUNITY CONNECTION NODE

The intersection of University Boulevard and N 300 West is an important entry node, a place for enhancing the sense of entry to the campus, and a place of connection with the city. The careful design of the museum entrance plaza, the location of views to the museum building, the opening of views toward the building and sculpture garden, and the treatment of existing and new street trees along both roadways is essential for achieving the desired sense of arrival and community connection.

C. VISITOR CONNECTION NODE

Since it is envisioned that most visitors will arrive by car, the north and east edges of the plaza should be developed in a manner to reinforce the sense of arrival. Trees should be used judiciously in these locations, and should be well coordinated with the envisioned sculptures, thereby heightening the overall impression of the building and plaza as a significant landscape feature, while enhancing the visual interest of visitors upon arrival. It is assumed that vertical design element or sculpture will be located in this area to help lead visitors into the site. As mentioned previously, the edge between the plaza and the parking areas should be left visually open and porous.

D. GREEN TRANSITION

Numerous large deciduous street trees currently line the edges of University Boulevard and N 300 West Street. While many of the trees are healthy and attractive, others are struggling to survive and should be removed. In order to enhance the image of both the street and museum, the relative merits of each tree should be comprehensively assessed during the detailed design stage. It is assumed that as many of the existing trees will be preserved as possible, and that new trees will be planted on a one-to-one basis for those that are removed, thereby reinforce the sense of continuity and helping to maintain the street edge as a green oasis. It is also assumed that the large landmark elm near the street intersection will be preserved, as discussed previously.

E. UNIVERSITY BOULEVARD FRONTAGE

University Boulevard is an important street, providing a direct link between the museum and the SUU campus, Main Street and the city core to the west. As described previously, the relative merits of the existing trees lining the museum block should be assessed in a comprehensive manner. It is assumed that as many of the existing trees will be preserved as possible, and that new trees of an equal number to those removed will be planted to maintain the green edge of the street. Additional street trees should be planted along the south edge of the street in front of the west parking lot, helping to convert the street into the namesake boulevard. The parking strip should be planted with water-wise turf or lawn in order to provide a level of continuity with existing park strips in the area. Street trees should be placed on their own irrigation circuit so the appropriate amount of water can be provided.

F. N 300 WEST FRONTAGE

Similar to University Boulevard, N 300 West is an important street, providing a direct link between the museum, the SUU campus and neighborhoods to the north and south. As described previously, the relative merits of the existing trees lining the museum block should be assessed in a comprehensive manner as part of the detailed design process. It is assumed that as many of the existing trees will be preserved as possible, and that new trees of an equal number to those removed will be planted to maintain the green edge of the street. Additional street trees should be planted along the street edge adjacent to the north parking lot, thereby helping to reinforce the sense of a green passageway. The parking strip surface should be planted with water-wise turf or lawn. Street trees should be placed on their own irrigation circuit so the appropriate amount of water can be provided.

G. HARDING AVENUE FRONTAGE

The treatment of Harding Avenue is less obvious than University Boulevard and N 300 West, due in part to its smaller size and function, the residential nature of the uses beyond the street edge, and the distance of the street from the museum site. In order to create a green and unified setting for the museum, a consistent row of large and evenly-spaced street trees should be placed on the south side of the street within the existing parking strips, thereby enhancing the sense of stately-shade and creating a strong "green" edge to the north. The parking strip surface should be planted with water-wise turf or lawn.

H. NORTH PARKING AND SERVICE AREA

The North Parking and Service Area will be the primary access point for those arriving at the museum by automobile. The parking lot is a place for drivers to park before proceeding on foot to the museum and surrounding plaza. In order to become a cool and attractive parking place in the hot summer climate, to help reduce the urban heat-island effect, and to help meet the LEED Gold Certification level of the project, it is assumed that parking lot will be designed in a manner that incorporates large deciduous shade trees and other complementary plantings. It is further assumed that adequate space and open soil will be provided around the trees, thereby helping to ensure that the trees and plants not only survive, but also thrive.

Pedestrian-scaled outdoor lighting should be provided throughout the parking lot that is attractive, functional and consistent with lighting in other campus parking areas. Directional and informational signage should be provided to enhance both vehicular and pedestrian wayfinding and orientation, utilizing existing campus standards.

I. WEST PARKING AREA

Similar to the North Parking and Service Area, the West Parking Area provides parking for visitors in addition to bus loading and unloading. The parking lot provides a place for drivers to park before proceeding on foot to the museum and surrounding plaza, in addition to other nearby campus destinations. In order to become a cool and attractive parking place in the hot climate, to help reduce the urban heat-island effect, and to help meet the LEED Gold Certification required for the project, it is assumed that parking lot will be designed in a manner that incorporates large deciduous shade trees and other complementary plantings. It is further assumed that adequate space and open soil will be provided to ensure that the trees and plantings not only survive, but also thrive. Soil that was previously paved will require remediation to correct compaction, and restore appropriate levels of organic matter, soil matrix composition, infiltration rates, soil biological function, and soil chemical characteristics

Pedestrian-scaled outdoor lighting should be provided that is attractive, functional and consistent with lighting in other campus parking areas. Directional and informational signage should be provided to enhance both vehicular and pedestrian wayfinding and orientation, utilizing existing campus standards.

J. PLAYING FIELDS

Although located relatively distant from the museum, the new playing fields should be designed and implemented in a manner that strengthens the sense of a unified project and campus block. It is assumed that the fields will incorporate waterwise turf or lawn, thereby helping to achieve the enhanced environmental vision for the area.

PLANT PALETTE

The following list is provided as a guide for selecting water-wise plants appropriate for the project. Consideration should be given to specific microclimatic conditions (sun, shade, solar aspect, etc.), the size and growth habit of species at maturity, the overall landscape design concept, and special environmental conditions (courtyard, adjacent to a south-facing wall, etc.).

BOTANICAL NAME	COMMON NAME
Trees	
Abies concolor*	White Fir
Acer campestre	Hedge Maple
Acer glabrum*	Rocky Mountain Maple
Acer grandidentatum*	Bigtooth Maple
Acer negundo 'Sensation'	Sensation Box Elder Maple
Acer tatarica	Tatarian Maple
Acer truncatum	Shantung Maple
Catalpa speciosa	Western Catalpa
Celtis occidentalis	Common Hackberry
Celtis reticulata*	Netleaf Hackberry
Corylus colurna	Turkish Filbert
Fraxinus anomala*	Singleleaf Ash
Fraxinus mandschurica 'Mancana'	Manchurian Ash
Ginkgo biloba	Maidenhair Tree
Gleditsia tricanthos	Honeylocust
Gymnocladus dioica	Kentucky Coffee Tree
Juniperus scopulorum sp.**	Rocky Mountain Juniper
Juniperus osteosperma*	Utah Juniper
Koelreuteria paniculata	Golden Rain Tree
Maackia amurensis	Amur Maackia
Picea abies	Norway Spruce
Picea pungens v. glauca*	Colorado Blue Spruce
Pinus aristata*	Bristlecone Pine
Pinus edulis*	Pinyon Pine
Pinus flexillis*	Limber Pine
Pinus heldrichii leucodermis	Bosnian Red Cone Pine
Pinus nigra	Austrian Pine
Pinus ponderosa*	Ponderosa Pine
Pinus strobiformis	Western White Pine
Pinus sylvestris	Scotch Pine
Prunus maackii	Amur Chokecherry
Prunus virginiana*	Chokecherry
Prunus virginiana 'Canada Red'	Canada Red Chokecherry
Pseudotsuga menziesii*	Douglas Fir
Quecus bicolor	Swamp White Oak
Quercus macrocarpa	Bur Oak
Sophora japonica 'Halka'	Halka Pagodatree
Sophora japonica 'Princeton Upright'	Princeton Upright Pagodatree
Syringa reticulata sp.	Japanese Lilac Tree
Tilia tomentosa 'Sterling Silver'	Sterling Silver Linden
Ulmus parvifolia 'Allée'	Allée Elm
Ulmus wilsoniana 'Prospector'	Prospector Elm
Ulmus x 'Accolade'	Accolade Elm
Ulmus x 'Frontier'	Frontier Elm
Ulmus x 'Triumph'	Triumph Elm
Zelkova serrata sp.	Zelkova
Shrubs	
Amelanchier alnifolia*	Saskatoon Serviceberry
Amelanchier utahensis*	Utah Serviceberry
Arctostaphylos sp.*	Manzanita
Aronia arbutifolia 'Brilliantissima'	Brilliant Red Chokeberry
Aronia melanocarpa elata	Black Chokeberry
Artemisia cana*	Silver Sage
Artemisia frigida*	Fringed Sage
Artemisia nova*	Black Sage
Artemisia tridentata*	Big Sagebrush
Artemisia tridentata wyomingensis*	Wyoming Big Sage
Atriplex canescens*	Fourwing Saltbush
Caragana sp.	Peashrub
Caryopteris x clandonensis	Blue Mist Spirea
Ceratoides lanata*	Winterfat
Cercocarpus intricatus*	Dwarf Mountain Mahogany
Cercocarpus ledifolius*	Curl-Leaf Mountain Mahogany
Chamaebatiaria millefolium*	Fernbush
Chrysothamnus nauseosus*	Rubber Rabbitbrush
Cowania mexicana*	Cliff Rose
Cotoneaster apiculata	Cranberry Cotoneaster
Cotoneaster divaricata	Spreading Cotoneaster

BOTANICAL NAME	COMMON NAME
Cotoneaster lucidus	Peking Cotoneaster
Cytisus scoparius	Scotch Broom
Ephedra viridis*	Mormon Tea
Fallugia paradoxa*	Apache Plume
Gutierrezia sarothrae*	Broom Snakeweed
Holodiscus dumosus*	Rock Spray Spiraea
Kerria japonica	Japanese Kerria
Mohoniaaquifolium compacta	Compact Oregon Grape
Pachistima myrsinites*	Mountain Lover
Philadelphus lewisii*	Lewis' Mockorange
Physocarpus opulifolius sp.	Ninebark
Pinus mugo mugus	Dwarf Mugo Pine
Prunus besseyi	Western Sandy Cherry
Prunus besseyi 'Pawnee Buttes'	Pawnee Buttes Sandy Cherry
Purshia tridentata*	Antelope Bitterbrush
Purshia mexicana*	Cliffrose
Quercus gambelii*	Scrub Oak
Rhamnus frangula 'Columnaris'	Tallhedge Buckthorn
Rhus aromatica 'Autumn Amber'	Autumn Amber Sumac
Rhus aromatica 'Grow Low'	Grow Low Sumac

BOTANICAL NAME	COMMON NAME
Rhus glabra*	Smooth Sumac
Rhus glabra cismontana*	Dwarf Smooth Sumac
Rhus trilobata*	Oakbrush Sumac
Ribes aureum*	Golden Currant
Ribes cereum*	Wax Currant
Rosa meidiland sp.	Meidiland Rose
Rosa woodsii*	Woods Rose
Rubus deliciousus*	Rocky Mountain Thimbleberry
Salvia doorii*	Dorr's Sage
Shepherdia rotundifolia*	Roundleaf Buffaloberry
Sorbus scopulina*	Western Mountain Ash
Symphoricarpos x chenaultii	Chenault Coralberry
Symphoricarpos oreophilus*	Mountain Snowberry
Viburnum lantana 'Mohican'	Mohican Cranberry
Viburnum opulus nanum	Dwarf European Cranberry
Viburnum trilobum sp.	American Cranberry
Yucca baccata*	Datil Yucca
Yucca utahensis*	Utah Yucca
<u>Ornamental Grasses</u>	
Blepharoneuron tricholepis	Pine Dropseed
Bothriochloa barbinodis*	Cane Bluestem
Bouteloua curtipendula*	Sideoats Grama
Bouteloua gracilis*	Blue Grama

BOTANICAL NAME	COMMON NAME
Chasmanthium latifolium	Wood Oats
Calamagrostis acutiflora	Feather Reed Grass
Calamagrostis acutiflora 'Karl Foerster'	Karl Foerster Reedgrass
Calamagrostis acutiflora 'Overdam'	Overdam Reedgrass
Deschampsia caespitosa	Tufted Hairgrass
Elymus elymoides*	Squirreltail
Elytrigia elongata	Tall Wheatgrass
Festuca arizonica	Arizona Fescue
Festuca ovina glauca*	Blue Fescue
Helictotrichon sempervirens	Blue Oat Grass
Koeleria macrantha*	Prarie Junegrass
Leymus cinereus*	Great Basin Wildrye
Miscanthus sinensis	Maidenhair Grass
Muhlenbergia capellensis	Muhly Grass
Muhlenbergia montana*	Mountain Muhly
Muhlenbergia rigens	Deergrass
Mulhlenbergia wrightii	Spike Muhly
Panicum virgatum	Switchgrass
Pennisetum alopecuroides	Fountain Grass
Poa fendleriana*	Muttongrass
Pseudoregneria spicata*	Bluebunch Wheatgrass
Schizachyrium scoparium*	Little Bluestem
Sorghastrum nutans	Indiangrass
Sporobolus airoides*	Alkali Sacaton
Sporobolus contractus*	Spike Dropseed
Stipa comata*	Needle and Thread Grass

BOTANICAL NAME	COMMON NAME
Stipa hymenoides*	Indian Rice Grass
Stipa speciosa*	Desert Needlegrass
Perennials	
Achillea sp.**	Yarrow
Aesclepias tuberose*	Butterfly Weed
Agastache sp.	Hyssop
Alchemilla mollis	Lady's Mantle
Aquilegia chrysantha*	Golden Columbine
Argemone munita**	Prickly Poppy
Artemisia schmidtiana	Silvermound
Asclepia speciosa*	Butterfly Milkweed
Aster frikartii	Flora's Delight Aster
Aster novi-belgii	Aster
Aster oblongiflolius	October Skies Aster
Astragalus utahensis*	Utah Lady Finger
Balsamorhiza sagittata*	Arrowleaf Balsamroot
Baptisia australis	False Indigo
Berlandiera lyrata	Chocolate Flower
Brunnera macrophylla	Heartleaf Brunnera
Callirhoe involucrate	Prairie Winecups
Coreopsis grandiflora	Coreopsis
Coreopsis verticillata	Threadleaf Coreopsis
Corydalis lutea	Yellow Corydalis
Crocosmia lucifer	Montbretia
Delphinium species*	Larkspur

BOTANICAL NAME	COMMON NAME
Echinacea sp.	Coneflower
Eriogonum umbellatum*	Sulfur Flower
Gaillardia aristata*	Blanket Flower
Gaura lindheimeri	Whirling Butterflies
Geranium viscosissimum*	Sticky Geranium
Hemerocallis sp.	Daylily
Heuchera micrantha 'Velvet Night'	Velvet Night Coral Bells
Heuchera x brizoides	Firefly Coral Bells
Ipomopsis aggregata**	Scarlet gilia
Iberis sempervirens	Candytuft
Iris missouriensis*	Rocky Mountain Iris
Kniphofia uvaria	Red Hot Poker
Lavandula angustifolia	English Lavender
Mirabilis multiflora*	Desert Four O'Clock
Nepeta faassenii	Catmint
Oenothera caespitosa*	Tufted Evening Primrose
Oenothera pallida*	Pale Evening Primrose
Oenothera howardii *	Bronze Evening Primrose
Oenothera missouriensis*	Missouri Evening Primrose
Penstemon eatonii*	Eaton Penstemon
Penstemon palmeri*	Palmer's Penstemon
Penstemon utahensis*	Utah Penstemon
Perovskia atriplicifolia	Russian Sage
Pulsatilla vulgaris	Pasque Flower

BOTANICAL NAME	COMMON NAME
Ratibida columnifera	Prairie Coneflower
Rudbeckia fulgida	Black-Eyed Susan
Rudbeckia nitida	Orange Coneflower
Rudbeckia occidentalis*	Western Coneflower
Salvia officinalis	Kitchen Sage
Santolina chamaecyparissus	Lavender Cotton
Santolia virens	Green Santolina
Saponaria ocymoides	Rock Soapwort
Sedum spectabile	Showy Stonecrop
Sempervivium tectorum	Hens and Chicks
Spharealcea sp.*	Globemallow
Teucrium chamaedrys	Wall Germander
Viguiera multiflora*	Showy Goldeneye
Yarrow sp.**	Achillea millefolium
Zauschneria latifolia.*	Hummingbird Flower
Vines and Groundcovers	
Achillea ageratifolia	Greek Yarrow
Ajuga reptans	Bugleweed
Antennaria parviflora*	Pussy Toes
Antennaria rosea*	Pink Pussy Toes
Arctostaphylos uva-ursi*	Kinkkikinnick
Campsis radicans	Trumpet Vines
Clematis hirsutissima*	Clematis sp.
Clematis occidentalis*	Clematis sp.

BOTANICAL NAME	COMMON NAME
Clematis montana*	Clematis
Delosperma nubigemium	Yellow Hardy Ice Plant
Gallium odoratum	Sweet Woodruff
Juniperus horizontalis sp.	Creeping Juniper
Lonicera japonica	Japanese Honeysuckle
Mahonia repens*	Creeping Oregon Grape
Parthenocissus tricuspidata	Boston Ivy
Polygonum aubertii	Silverlace Vine
Rhus aromatica 'Autumn Amber'	Autumn Amber Sumac
Rhus aromatica 'Grow Low'	Grow Low Sumac
Sedum sp.	Stonecrop
Stachys byzantina 'Silver Carpet'	Silver Carpet Lambs Ears
Symphoricarpos x chenaultii 'Hancock'	Hancock Coralberry
Teucrium aroanium	Gray Creeping Germander
Thymus sp.	Creeping Thyme
Vitis spp.	Grapes
Wisteria sp.	Wisteria

Waterwise turf/ lawn (not encouraged for this project)

Bouteloua curtipendula*	Sideoats Grama
Bouteloua gracilis*	Blue Grama
Buchloe dactyloides	Buffalograss
Festuca arundinacea	Turf-Type Tall Fescue
Festuca ovina*	Sheep Fescue
Koeleria macrantha*	Junegrass
Poa secunda*	Sandberg Bluegrass

* *Utah native*

** *Some species native to Utah*

Landscape

Landscape

Individual Space Outline

04

Visitor Levels of Engagement

04.1

VISITOR EXPERIENCE

In developing the program, one of the main goals is to provide a facility that consistently puts the experience of the visitor at the forefront.

VISITOR EXPERIENCE DIAGRAM

As a result of working sessions and interviews with the University representatives and stakeholders from the community, this diagram was developed to be a working document for the project. The diagram shows the six primary representative groups that will benefit from the new museum and the targeted levels of engagement for these groups. The concentric circles indicate a specific level of initial engagement graduating to a deeper connection as they move inward. With the outermost ring representing what the casual visitor might experience and the inner ring the level of what an advocate or participant could achieve, the diagram can serve as a guide for both the physical facility and programmatic development.

VISITOR BILL OF RIGHTS

Taken from the American Association of Museum -Committee on Audience Research and Evaluation

COMFORT

"MEET MY BASIC NEEDS"

Visitors need fast, easy, obvious access to clean, safe, barrier-free restrooms, baby-changing tables, fountains, food, and plenty of seating.They also need full access to exhibits.

WELCOME/BELONGING

"MAKE ME FEEL WELCOME."

Friendly, helpful staff ease visitors' anxieties. If they see themselves represented*in exhibits and programs and by the staff, they'll feel more like they belong.

*i.e. first-time visitors, diverse audiences, infrequent museum-goers.

ORIENTATION

"MAKE IT EASY FOR ME TO FIND MY WAY AROUND."

Visitors need to make sense of their surroundings. Clear signs and well-planned spaces* help them know what to expect, where to go, how to get there and what it's about.

*i.e. spaces large enough for the size of the audience; spaces that are appropriate for the activities; flexible spaces to accommodate the desire for flexible programming.

SOCIALIZING

"I CAME TO SPEND TIME WITH MY FAMILY AND FRIENDS."

Visitors come for a social outing with family or friends (or to connect with society at large). They expect to talk, interact and share/experience; exhibits can set the stage for this.

ENJOYMENT

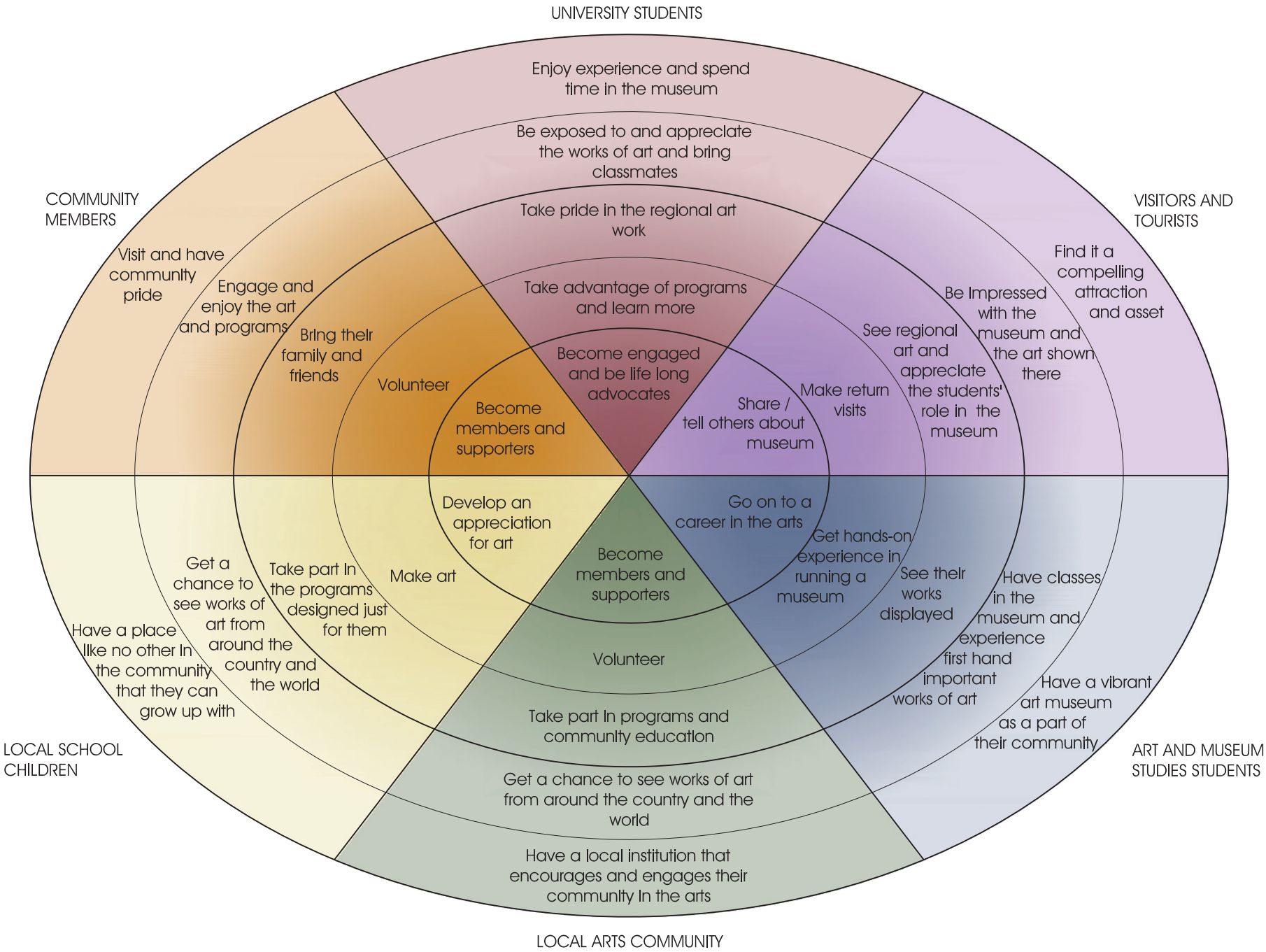
"I WANT TO HAVE FUN!"

Visitors want to have a good time. If they run into barriers (like brokenexhibits, activities they can't relate to, intimidating labels) they can get frustrated, bored and confused.

RESPECT

"ACCEPT ME FOR WHO I AM AND WHAT I KNOW."

Visitors want to be accepted at their own level of knowledge and interest.



Visitor Levels of Engagement

Space Program Area Summary

04.2

		Function Area		Space Name	Description	Occ. #	SF /Person	NASF	Qty	NASF	Discussion Notes
A.	Galleries										
	1.	Galleries	a.	Jim Jones Gallery	Long-term gallery. Currently have 14 pieces of art from Jim Jones. Need approximately 100 linear feet of wall space. This gallery will also be used for artists other than Jim Jones.			1,500	1	1,500	Provide adjacencies for contiguous spaces for larger exhibit opportunities
			b.	Braithwaite Gallery	Heritage gallery. Will be the home for SUU's exhibiting and permanent collection.			1,500	1	1,500	Can Braithwaite and Student/Faculty Gallery be combined?
			c.	Featured Gallery	This space will be used for traveling exhibits, with great ability to be flexible and easily reconfigured.			2,000	1	2,000	
			d.	Student and Faculty Gallery	Space for student and faculty work.			1,000	0	0	Can also utilize the Braithwaite Gallery for faculty and student work exhibits
			e.	Gallery A	Additional gallery			930	1	930	
			f.	Gallery B	Additional gallery			1,000	0	0	
			g.	Digital Media Gallery	"Black-Box" gallery for digital media. Can be created within an existing gallery vs. being its own space.			500	1	500	
	2.	Gallery Storage	a.	Storage	Storage areas associated with galleries for storage of temporary walls/lights and associated "flexible" gallery support items.			200	1	200	
								Sub Total NSF Galleries		6,630	

Space Program Area Summary

		Function Area		Space Name	Description	Occ. #	SF /Person	NASF	Qty	NASF	Discussion Notes
B.		**Public Spaces**									
	1.	Entry Vestibule	a.	Entry Vestibule	Interior airlock at main entrance of building. Will have walk-off mats. Minimum two sets of exterior double doors, two sets of interior double doors.			180	1	180	
	2.	Grand Lobby	a.	Grand Lobby	Grand Lobby for special events and receptions. Space can be arrange for sit-down table or stand up cocktail tables. SF is based on stand-up cocktail tables. Refreshments can be served here as they will not be permitted in the galleries.	200	10	2,000	1	2,000	Space for art majors to meet, up to 250 students
	3.	Table and Chair Storage	a.	Table and Chair Storage	Large storage adjacent to Grand Lobby and galleries for table and chair storage for special events.			250	0	0	This function is included in the Grand Lobby NSF.
	4.	Reception Desk	a.	Reception and Gallery Control Point	Reception desk for up to two people. This will be the control point for entrance into the galleries. It is anticipated that admission will be free into the galleries except for special shows/events. Space to include a reception/welcoming counter-millwork. Membership sales to take place here. Will need a POS. Additional monitors for camera surveillance.	2	100	200	0	0	Could be part of Grand Lobby
	5.	Museum Store	a.	Retail Store	Sales area for museum-related items. Should be accessible from Grand Lobby. Point of sale provided within retail space.			400	1	400	Rolling kiosks into Grand Lobby
			b.	Museum Store Storage	Inventory storage for the Museum Store as well a storage for exhibit brochures and announcements. Space would also be used for prep for packaging and shipping. Store manager's office space.			150	1	150	

	Function Area		Space Name	Description	Occ. #	SF /Person	NASF	Qty	NASF	Discussion Notes
6.	Museum Café -Seating	a.	Café-Seating	Indoor seating for up to 35 people. Should also have an exterior presence and exterior seating for an additional 25 people.	35	15	525	0	0	To be considered for Ph 2
		b.	Café- Prep Kitchen	Kitchen space to support the café as well as provide prep and plating area for catered receptions and events. Not a full commercial kitchen; prep functions only.			500	0	0	
		c.	Catering Kitchen	To be located adjacent to Grand Lobby			200	0	0	Function for catering to take place in the Break Room
7.	Public Restrooms	a.	Public Restrooms	Men's and women's ADA public restrooms per minimum code requirements for public areas of the building.			420	2	840	
8.	Janitor Room-Public Side	a.	Janitor Room	Janitor closet for the public side of the building. Mop sink and shelves for storage.			100	1	100	
		b.	Unisex Staff Restrooms	Single occupancy ADA unisex restrooms	1	64	64	0	0	Use the public restroom
								Sub Total NSF Public Spaces	3,670	

Space Program Area Summary

	Function Area		Space Name	Description	Occ. #	SF /Person	NASF	Qty	NASF	Discussion Notes
C.	**Museum Administration**									
1	Offices-Private	a.	Museum Director's Office	Private office for Museum Director. Seating for private meetings.	1	180	180	1	180	
		b.	Museum Store Manager's Office	Private office for Museum Store Manager	1	120	120	0	0	
2.	Offices-Open Workstations	a.	Director's Assistant Workstation	Workstation for Director's Assistant. 10 x 8 (80 SF) + 64 SF for internal circulation.	1	144	144	1	144	
		b.	Volunteer's Director Workstation	Workstation for Volunteer Director	1	100	100	1	100	
		c.	Student Workstations	Open office area with up to four student workstations. 6 x 8 (48 SF) + 48 SF for internal circulation.	1	96	96	0	0	
3.	Administrative Support Spaces	a.	Administrative Conference Room	Conference room for up to 12 people.	12	20	240	0	0	Use break room with conference table
		b.	Staff and Docent Break Room	Break room and training room for Staff and Docents, including space for fridge, microwave, sink, lockers to lock up personal belongings, tables and chairs. Also to be used as prep-kitchen for catered events. Exhausting this room properly will be critical.	15	20	300	1	300	
		c.	Copy-Fax-Mail-Supply Room	Room for copy machine, fax, printers, supplies			100	1	100	
		d.	Unisex Staff Restrooms	Single occupancy ADA unisex restrooms	1	64	64	0	0	Use the public restroom
		e.	Administrative File/Storage Room	Small storage room for files and administrative items			100	1	100	
					Sub Total NSF Museum Administrative Spaces				924	

		Function Area		Space Name	Description	Occ. #	SF /Person	NASF	Qty	NASF	Discussion Notes
D.	Collections and Conservation										
	1.	Receiving	a.	Interior Sally Port	Fully conditioned interior vehicle parking for large "red" truck.			800	0	0	Likelihood of a traveling exhibit using SUU's truck is not likely
			b.	Interior Receiving	Receiving area for items brought in through the loading dock.			200	1	200	
			c.	Temporary Art Storage	"Dirty" area to hold art prior to processing.			150	1	150	
			d.	Fire Proof Vault	Fire-rated secure vault			150	1	150	
	2.	Collection-Storage	a.	3-Dimensional Collections Storage	Secure /temperature and humidity controlled space for ceramics and bronzes (museum shelving).			250	1	250	
			b.	2-Dimensional Reserve Collections Storage	Secure /temperature and humidity controlled space for Reserve Collections Storage (High Density Storage Units).			500	1	500	
			c.	2-Dimensional Permanent Collections Storage	Secure /temperature and humidity controlled space for Permanent Collections Storage (High Density Storage Units).			500	1	500	
			d.	Photography and Works of Art on Paper	Secure /temperature and humidity controlled space for Photography and Works of Art on Paper Storage (High Density Storage Units).			250	0	0	To be stored in 2-Dimensional Permanent Collections Storage

	Function Area		Space Name	Description	Occ. #	SF /Person	NASF	Qty	NASF	Discussion Notes
3.	Work Spaces	a.	General Work Room	2-D framing and matting. Space to be adjacent to gallery spaces. Space for large format printer.			250	1	250	
		b.	Conservation Lab	Repairs and work associated with the galleries.			180	1	180	
		c.	Exhibit Fabrication	Space for exhibit fabrication. Should be adjacent to Sally Port.			200	0	0	Take place in galleries or workroom
		d.	Supply Storage	General conservation supply storage			150	1	150	
4.	Collections Offices	a.	Registrar's Office	Private office for Registrar	1	120	120	1	120	
		b.	Assistant Registrar's Workstation	Open office area with up to four student workstations. 6 x 8 (48 SF) + 48 SF for internal circulation.	1	96	96	0	0	
		c.	Student Workstations	Open office area with up to two student workstations. 6 x 8 (48 SF) + 48 SF for internal circulation.	1	96	96	2	192	
		d.	Unisex Staff Restroom	Single occupancy ADA unisex restroom	1	64	64	1	64	
					Sub Total NSF Collections/Conservation Spaces				**2,706**	

	Function Area		Space Name	Description	Occ. #	SF /Person	NASF	Qty	NASF	Discussion Notes
E.	**Education**									
1.	Artist in Residence Program	a.	Artist in Residence Studio	Small studio for Artist in Residence (with sink). One for painting/drawing, one for ceramics with small electric kiln.	1	250	250	0	0	Consider for phase 2
2.	Classrooms	a.	Classroom	Classroom for Museum and Gallery Practices and Museum Studies. Additional SF required for gallery mock-up space. Flat floor space with movable furniture. One of the walls to be used for mock exhibit prep space.	30	50	1,500	1	1,500	
3.	Education Administration	a.	Education Director Office	private office for Education Director.	1	140	140	1	140	
		b.	Education Director's Assistant Workstation	Workstation for Education Director's Assistant. 10 x 8 (80 SF) + 64 SF for internal circulation.	1	144	144	1	144	
4.	Education Support Spaces	a.	Restrooms	Men's and women's ADA public restrooms per minimum code requirements for education areas of the building.			240	2	480	
5.	Children's Studio	a.	Children's Art Studio	Art classroom/studio for children activities	30	40	1,200	0	0	Could be shared with classroom space
		b.	Art Supplies Storage Room	Storage room for art supplies			100	1	100	
6.	Library/Research	a.	Library and Research Space	Art Library and table for sit-down research.			200	0	0	
								Sub Total NSF Education Spaces	2,364	
								SUB TOTAL NSF	16,294	NSF
								TOTAL GSF (Efficiency 65%)	25,068	GSF

Efficiency mark-up includes walls, circulation, mechanical, electrical, telecomm, IT/AV spaces

Exterior Functions
Loading Dock
Bus Drop-off Area
Childrens/Large Group Staging Area
Sculpture Garden

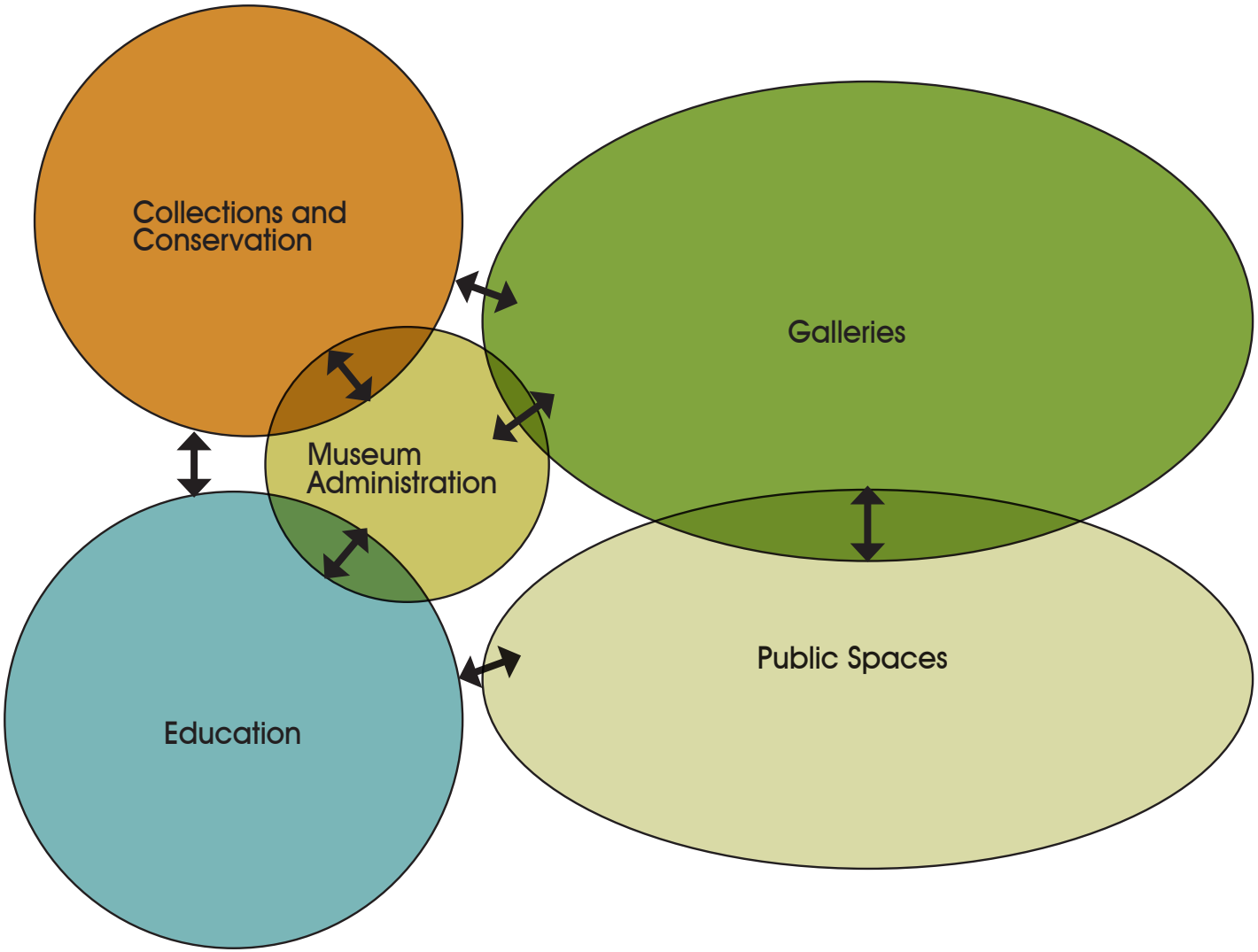
Space Program Area Summary

The adjacency studies on the following pages summarize the preferred spatial relationships of the major museum functions, with detailed adjacency studies describing the preferred relationships of the spaces within those functions. The design team should consider these relationships carefully when designing the functional layout of the SUMA building.

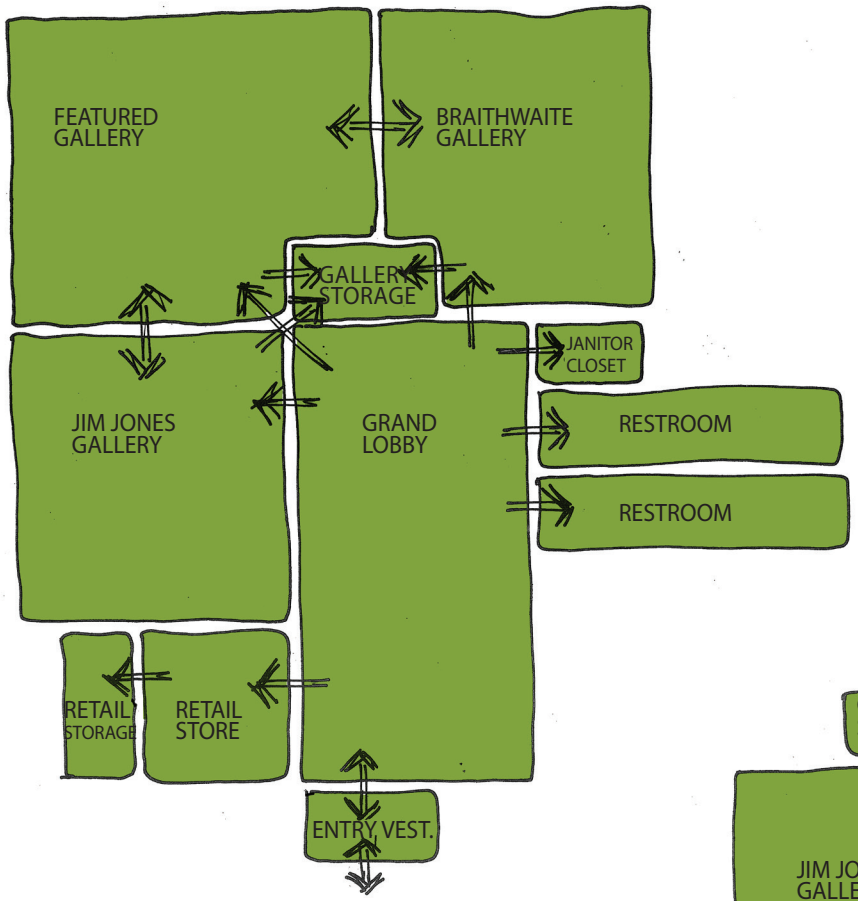
Adjacency Studies

04.3

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education



Adjacency Study



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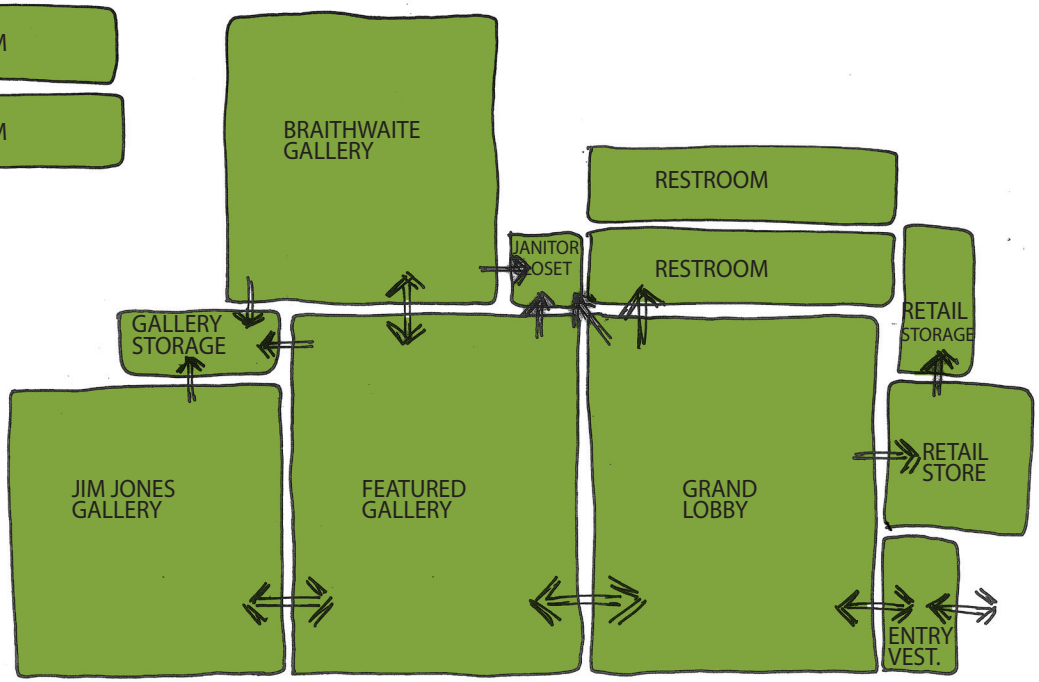
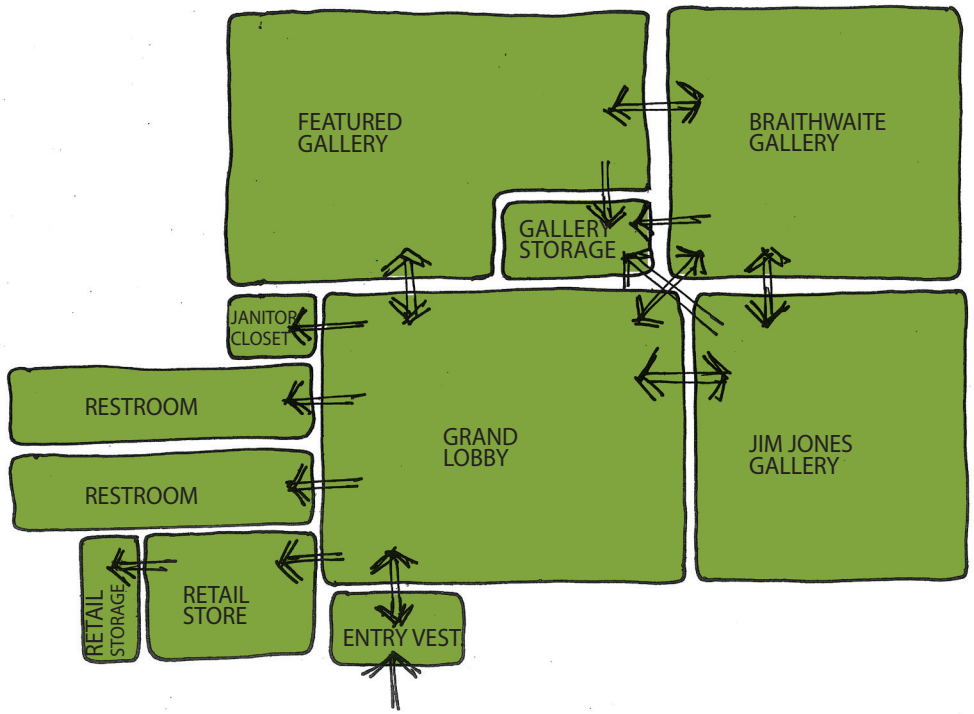


OPTION B

Detailed Adjacency Study

Galleries and Public Spaces



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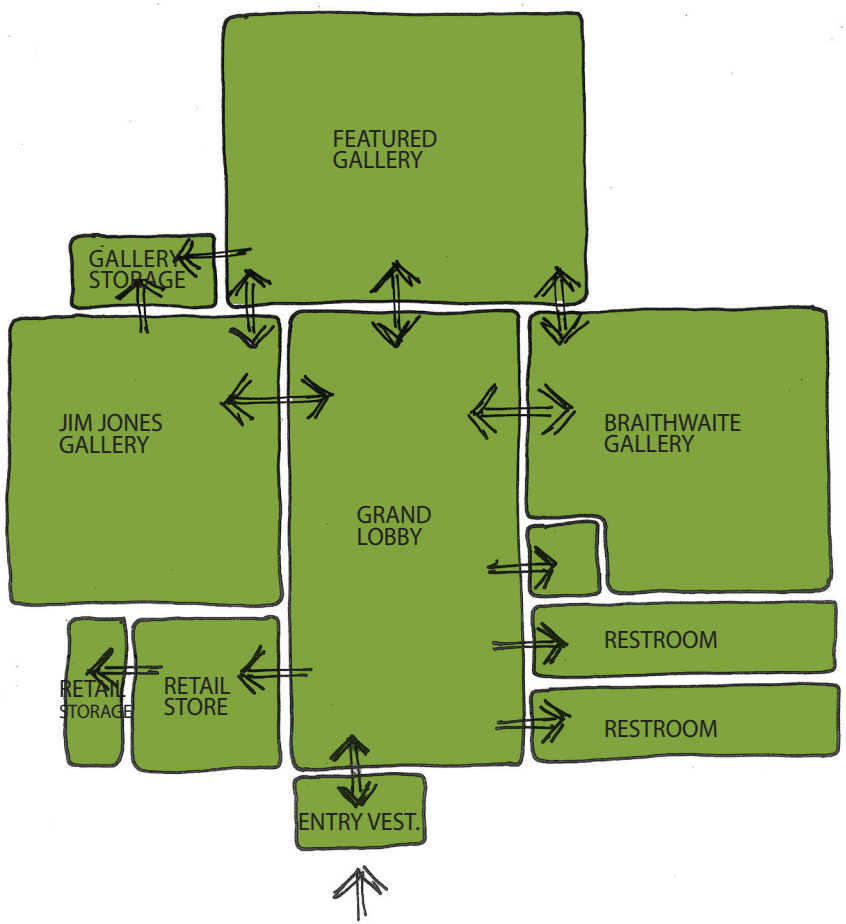
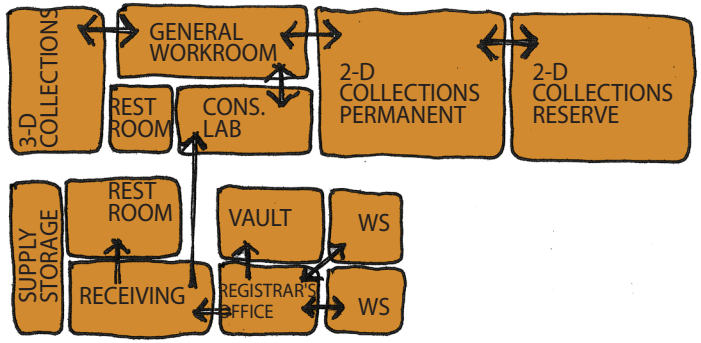


OPTION D

Galleries and Public Spaces

Detailed Adjacency Study



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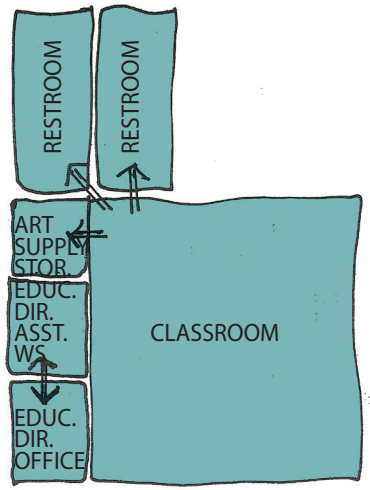
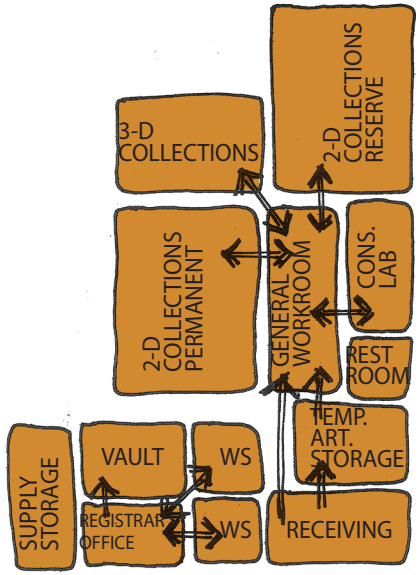
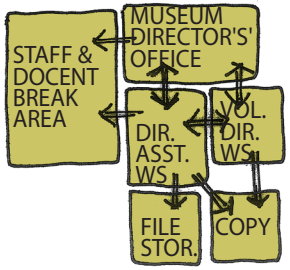


Education



OPTION A

Collections & Conservation



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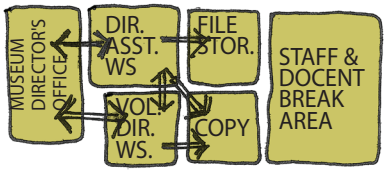


OPTION A

Museum Administration

Detailed Adjacency Study

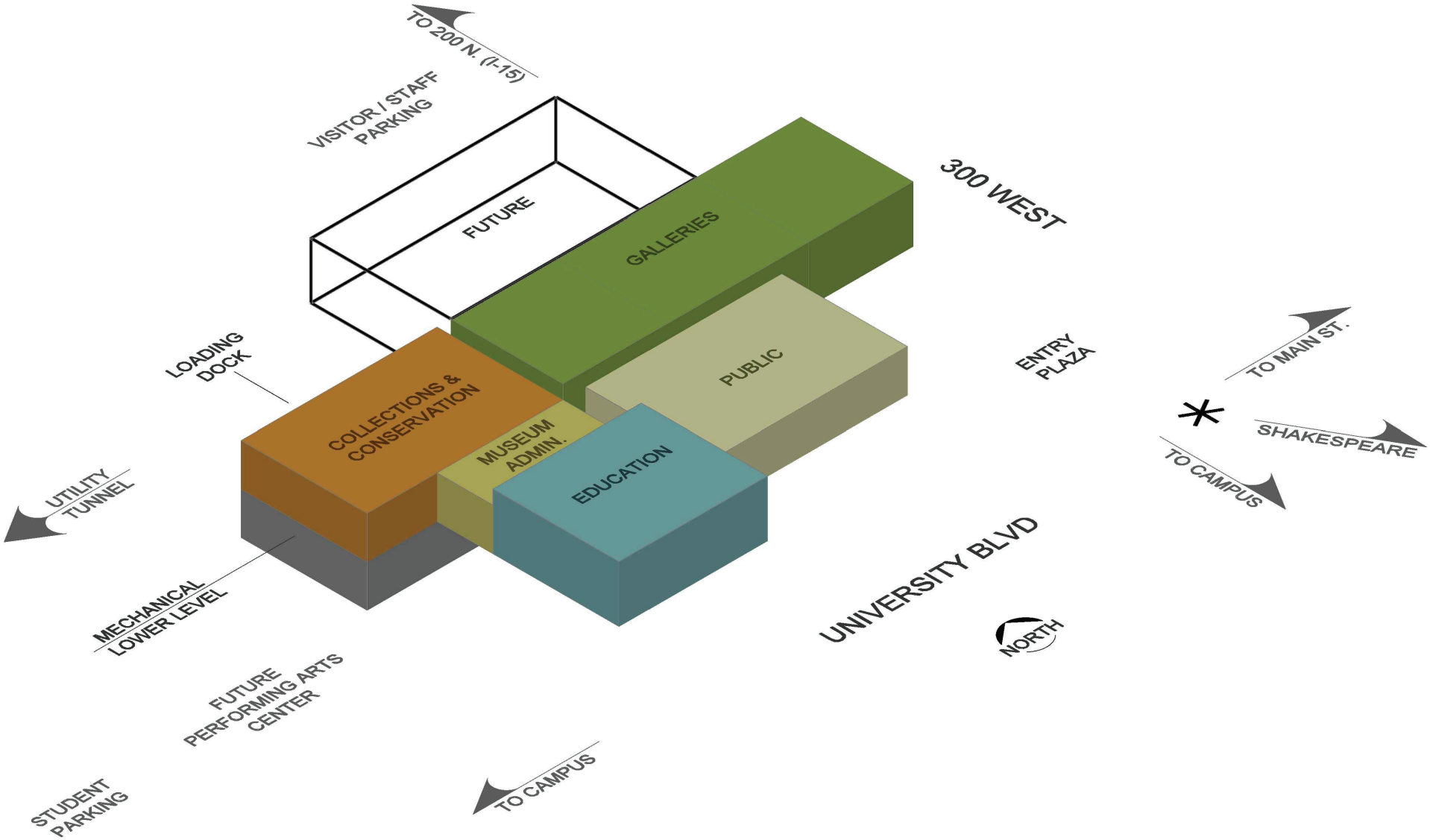
Preferred Stacking Diagram

04.4

PREFERRED STACKING DIAGRAM

The preferred stacking diagram describes a building form with a strong east-west axis, taking advantage of the solar conditions of the site. Galleries and collections have a direct connection to one another with an adjacency to museum administration. The public spaces have a direct connection to the galleries and education with adjacency to museum administration. Mechanical spaces are tucked below the collections with daylight access to this lower level function. Loading is located along the north side of the diagram, keeping it screened from University Boulevard. Future gallery space can grow to the north, helping to further screen the loading dock from 300 North.

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



Preferred Stacking Diagram

Room Data Sheets

04.5

1. SPACE PROGRAM

SPACE DESCRIPTION	Jim Jones Gallery
FUNCTION	Art Gallery
NUMBER OF OCCUPANTS	300
AREA (NASF)	1,500

2. ARCHITECTURAL

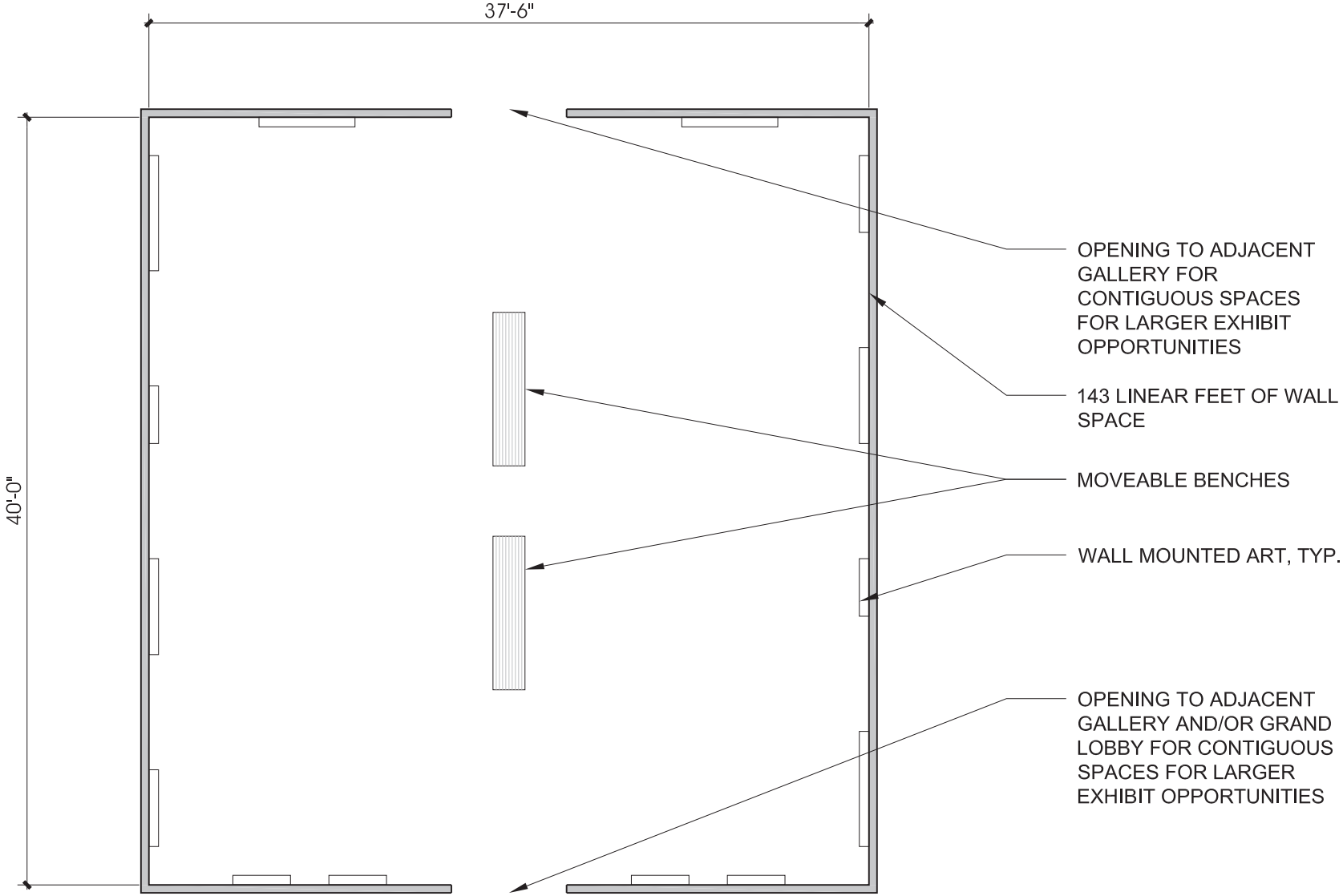
WINDOW	Minimize UV exposure
DOORS	Oversized door width & height
FLOOR	Wood floor & base
WALL	Painted gypsum board with plywood backing Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	16'-0" to 20'-0" minimum
ACOUSTICS/AUDIO VISUAL	Best to have a more rectangular than square-shaped room Sound system
GENERAL CHARACTER OF ROOM	Shape and dimensions of room should allow Jim Jones paintings to be viewed close-up and at a minimum distance of 30'-0" away Need approximately 100 linear feet of wall space Provide moveable partitions. Design Team to determine type. Coordinate with SUU.

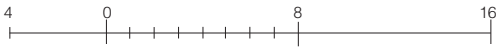
3. ENGINEERING

SECURITY	Instrusion detection and CCTV
HVAC	Summer temperature: 70 occupied/70 unoccupied Winter temperature: 70 occupied/70 unoccupied Humidity set point: 30% +/- 2.5% Noise criterion: 25-30 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/7.5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets and two floor outlets
PLUMBING	None
LIGHTING	Energy efficient LEDs or incandescent with dimming capability Track-type lighting with aimable fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	None
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Movable benches





ajc architects

Galleries

A.1.a. Jim Jones Gallery

Individual Space Analysis 04.29

1. SPACE PROGRAM

SPACE DESCRIPTION	Braithwaite Gallery
FUNCTION	Art Gallery
NUMBER OF OCCUPANTS	300
AREA (NASF)	1,500

2. ARCHITECTURAL

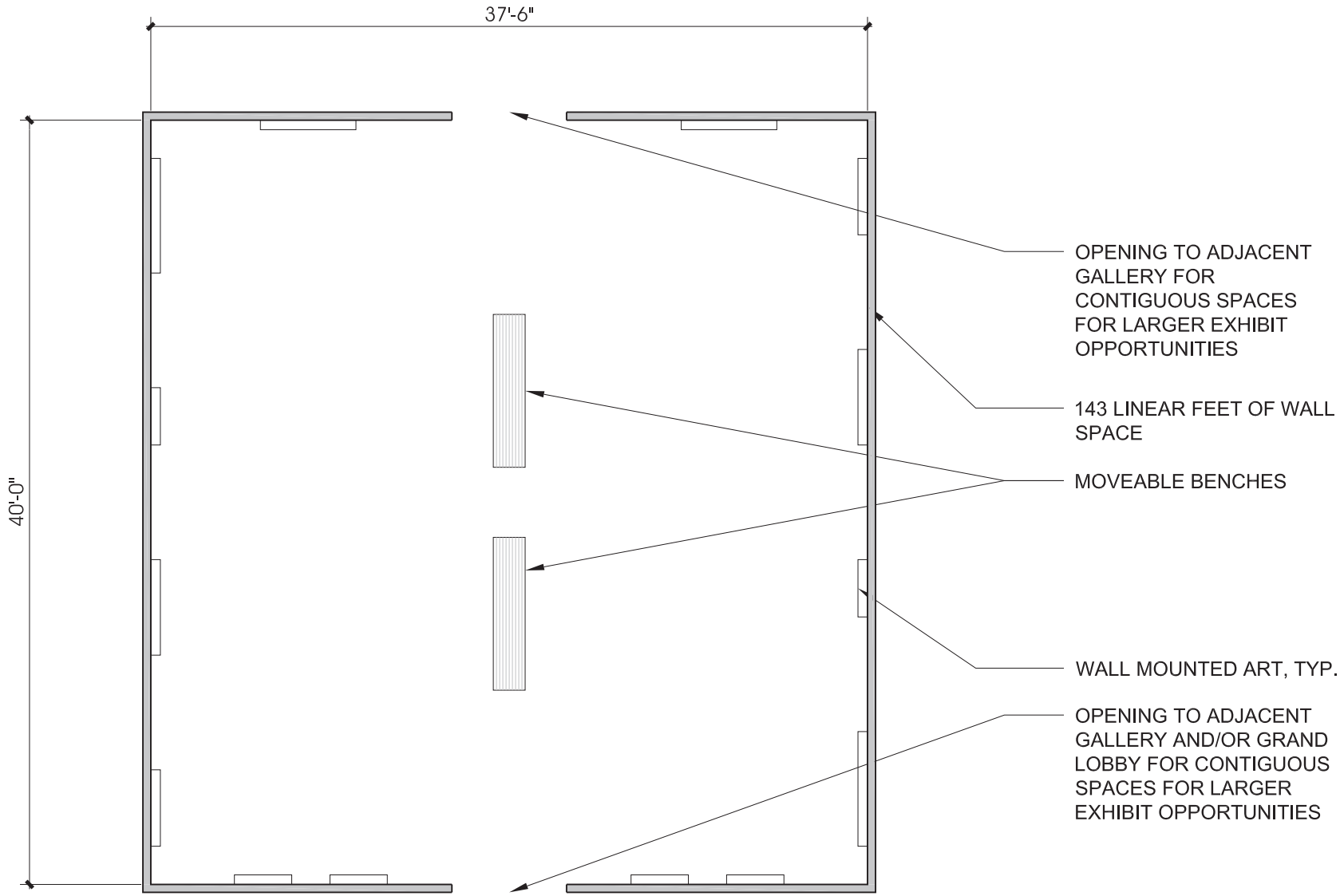
WINDOW	Minimize UV exposure
DOORS	Oversized door width & height
FLOOR	Wood floor & base
WALL	Painted gypsum board with plywood backing Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	16'-0" to 20'-0" minimum
ACOUSTICS/AUDIO VISUAL	Best to have a more rectangular than square-shaped room Sound system
GENERAL CHARACTER OF ROOM	Open flexible floor plan Provide moveable partitions. Design Team to determine type. Coordinate with SUU.

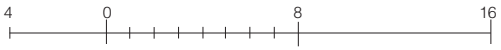
3. ENGINEERING

SECURITY	Intrusion detection and CCTV
HVAC	Summer temperature: 70 occupied/70 unoccupied Winter temperature: 70 occupied/70 unoccupied Humidity set point: 30% +/- 2.5% Noise criterion: 25-30 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/7.5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets and two floor outlets
PLUMBING	None
LIGHTING	Energy efficient LEDs or incandescent with dimming capability Track-type lighting with aimable fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	None
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Movable benches


37'-6"
40'-0"
OPENING TO ADJACENT GALLERY FOR CONTIGUOUS SPACES FOR LARGER EXHIBIT OPPORTUNITIES
143 LINEAR FEET OF WALL SPACE
MOVEABLE BENCHES
WALL MOUNTED ART, TYP.
OPENING TO ADJACENT GALLERY AND/OR GRAND LOBBY FOR CONTIGUOUS SPACES FOR LARGER EXHIBIT OPPORTUNITIES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1. SPACE PROGRAM

SPACE DESCRIPTION	Braithwaite Gallery
FUNCTION	Art Gallery
NUMBER OF OCCUPANTS	300
AREA (NASF)	1,500

2. ARCHITECTURAL

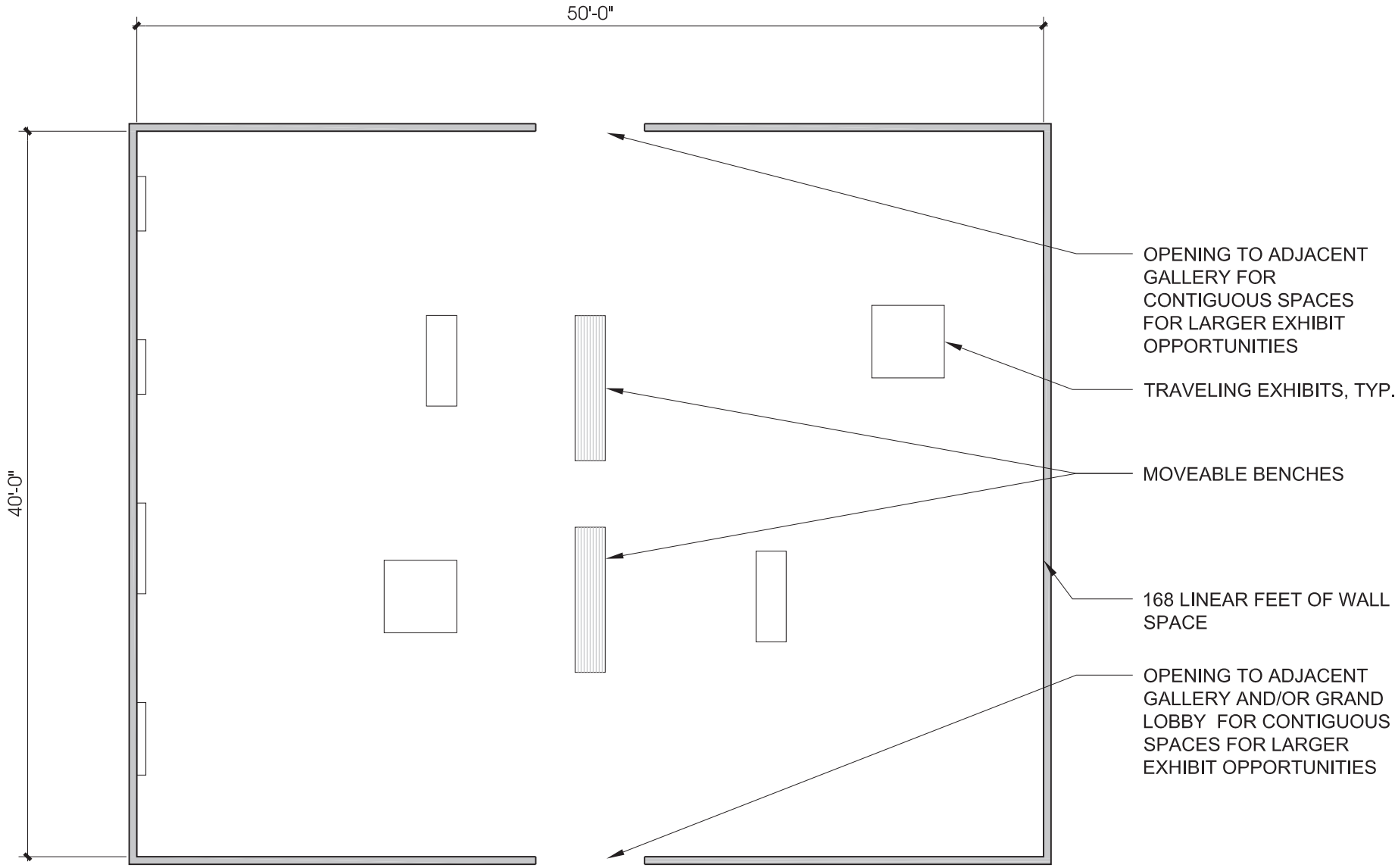
WINDOW	Minimize UV exposure
DOORS	Oversized door width & height
FLOOR	Wood floor & base
WALL	Painted gypsum board with plywood backing Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	16'-0" to 20'-0" minimum
ACOUSTICS/AUDIO VISUAL	Best to have a more rectangular than square-shaped room Sound system
GENERAL CHARACTER OF ROOM	Open flexible floor plan Provide moveable partitions. Design Team to determine type. Coordinate with SUU.

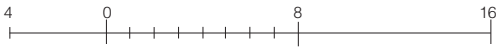
3. ENGINEERING

SECURITY	Intrusion detection and CCTV
HVAC	Summer temperature: 70 occupied/70 unoccupied Winter temperature: 70 occupied/70 unoccupied Humidity set point: 30% +/- 2.5% Noise criterion: 25-30 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/7.5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets and two floor outlets
PLUMBING	None
LIGHTING	Energy efficient LEDs or incandescent with dimming capability Track-type lighting with aimable fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	None
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Movable benches


50'-0"
40'-0"
OPENING TO ADJACENT GALLERY FOR CONTIGUOUS SPACES FOR LARGER EXHIBIT OPPORTUNITIES
TRAVELING EXHIBITS, TYP.
MOVEABLE BENCHES
168 LINEAR FEET OF WALL SPACE
OPENING TO ADJACENT GALLERY AND/OR GRAND LOBBY FOR CONTIGUOUS SPACES FOR LARGER EXHIBIT OPPORTUNITIES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1. SPACE PROGRAM

SPACE DESCRIPTION	Gallery A
FUNCTION	Art Gallery
NUMBER OF OCCUPANTS	186
AREA (NASF)	930

2. ARCHITECTURAL

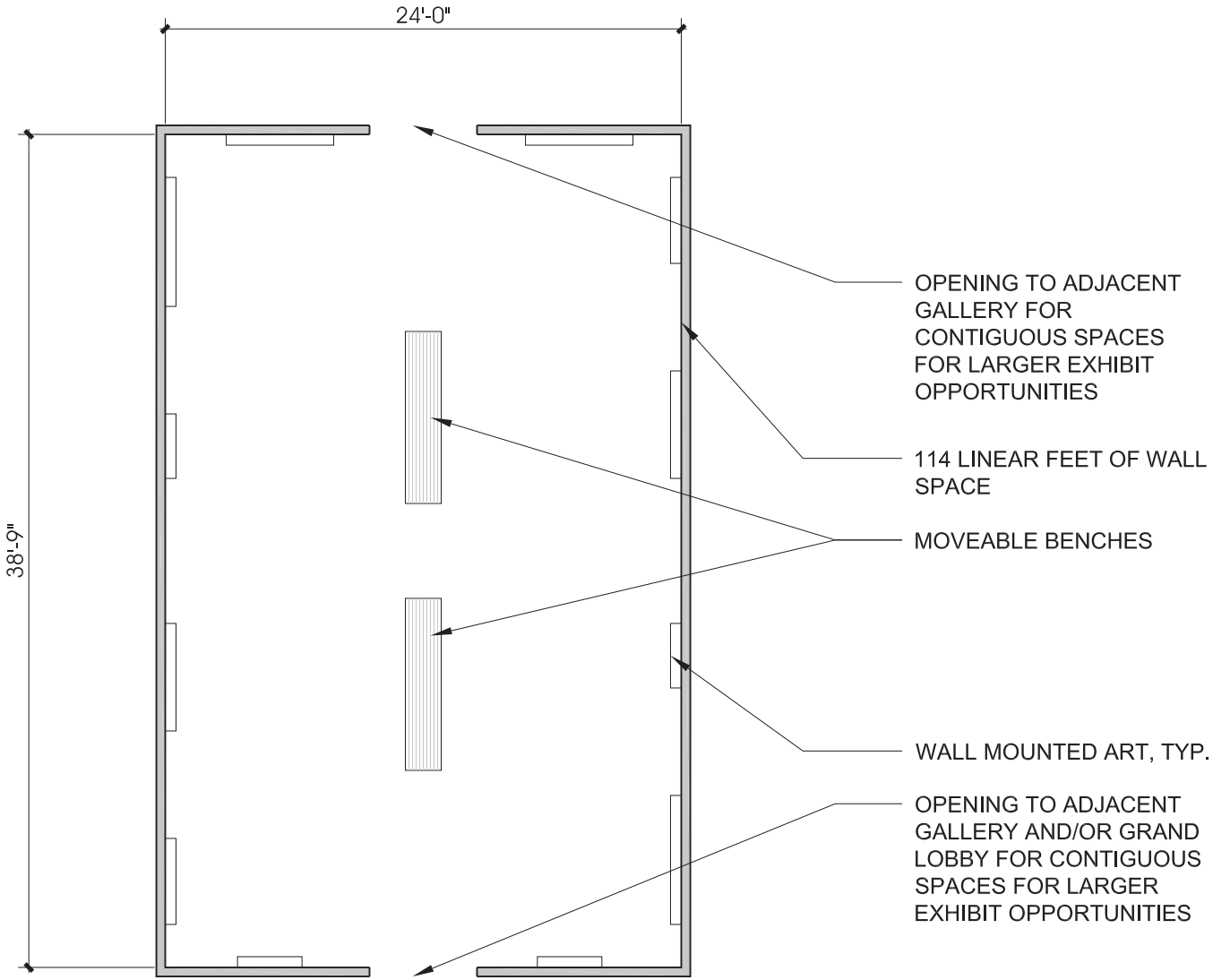
WINDOW	Minimize UV exposure Skylight or clerestory
DOORS	Oversized door width & height
FLOOR	Wood floor & base
WALL	Painted gypsum board with plywood backing Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	16'-0" to 20'-0" minimum
ACOUSTICS/AUDIO VISUAL	Best to have a more rectangular than square-shaped room Sound system
GENERAL CHARACTER OF ROOM	Open flexible floor plan Provide moveable partitions. Design Team to determine type. Coordinate with SUU.

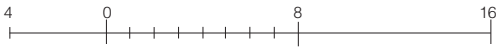
3. ENGINEERING

SECURITY	Intrusion detection and CCTV
HVAC	Summer temperature: 70 occupied/70 unoccupied Winter temperature: 70 occupied/70 unoccupied Humidity set point: 50% +/- 2.5% Noise criterion: 25-30 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/7.5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets and two floor outlets
PLUMBING	None
LIGHTING	Energy efficient LEDs or incandescent with dimming capability Track-type lighting with aimable fixtures
PHONE/DATA	Wall outlets, along with wireless capability
INTERCOM SYSTEM	None
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Movable benches


24'-0"
38'-9"
OPENING TO ADJACENT GALLERY FOR CONTIGUOUS SPACES FOR LARGER EXHIBIT OPPORTUNITIES
114 LINEAR FEET OF WALL SPACE
MOVEABLE BENCHES
WALL MOUNTED ART, TYP.
OPENING TO ADJACENT GALLERY AND/OR GRAND LOBBY FOR CONTIGUOUS SPACES FOR LARGER EXHIBIT OPPORTUNITIES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1. SPACE PROGRAM

SPACE DESCRIPTION	Digital Media Gallery
FUNCTION	Art Gallery
NUMBER OF OCCUPANTS	100
AREA (NASF)	500

2. ARCHITECTURAL

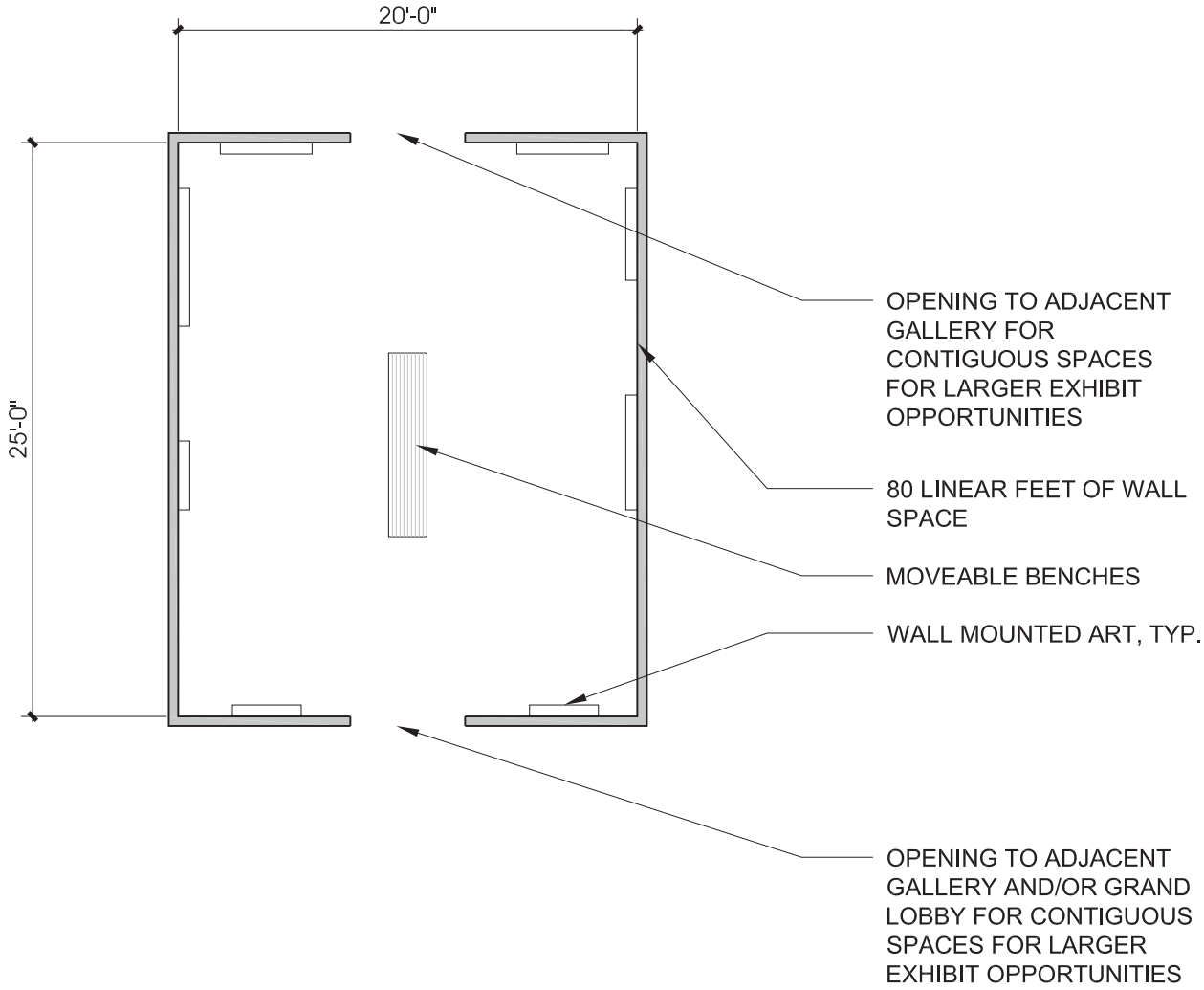
WINDOW	No windows or daylighting
DOORS	Oversized door width & height
FLOOR	Wood floor & base
WALL	Painted gypsum board with plywood backing Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	16'-0" to 20'-0" minimum
ACOUSTICS/AUDIO VISUAL	Best to have a more rectangular than square-shaped room Sound system
GENERAL CHARACTER OF ROOM	Open flexible floor plan Need to be able to make this room completely dark Provide moveable partitions. Design Team to determine type. Coordinate with SUU.

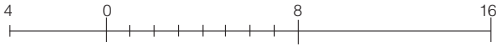
3. ENGINEERING

SECURITY	Intrusion detection and CCTV
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 25-30 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/7.5 (demand controlled ventilation) Note: Design for 5 watts per square foot load
ELECTRICAL	120V power wall outlets and two floor outlets
PLUMBING	None
LIGHTING	Energy efficient LEDs or incandescent with dimming capability Track-type lighting with aimable fixtures
PHONE/DATA	Wall and flooroutlets and wireless capability
INTERCOM SYSTEM	None
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Movable benches


20'-0"
25'-0"
OPENING TO ADJACENT GALLERY FOR CONTIGUOUS SPACES FOR LARGER EXHIBIT OPPORTUNITIES
80 LINEAR FEET OF WALL SPACE
MOVEABLE BENCHES
WALL MOUNTED ART, TYP.
OPENING TO ADJACENT GALLERY AND/OR GRAND LOBBY FOR CONTIGUOUS SPACES FOR LARGER EXHIBIT OPPORTUNITIES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1. SPACE PROGRAM

SPACE DESCRIPTION	Gallery Storage
FUNCTION	Storage
NUMBER OF OCCUPANTS	1
AREA (NASF)	200

2. ARCHITECTURAL

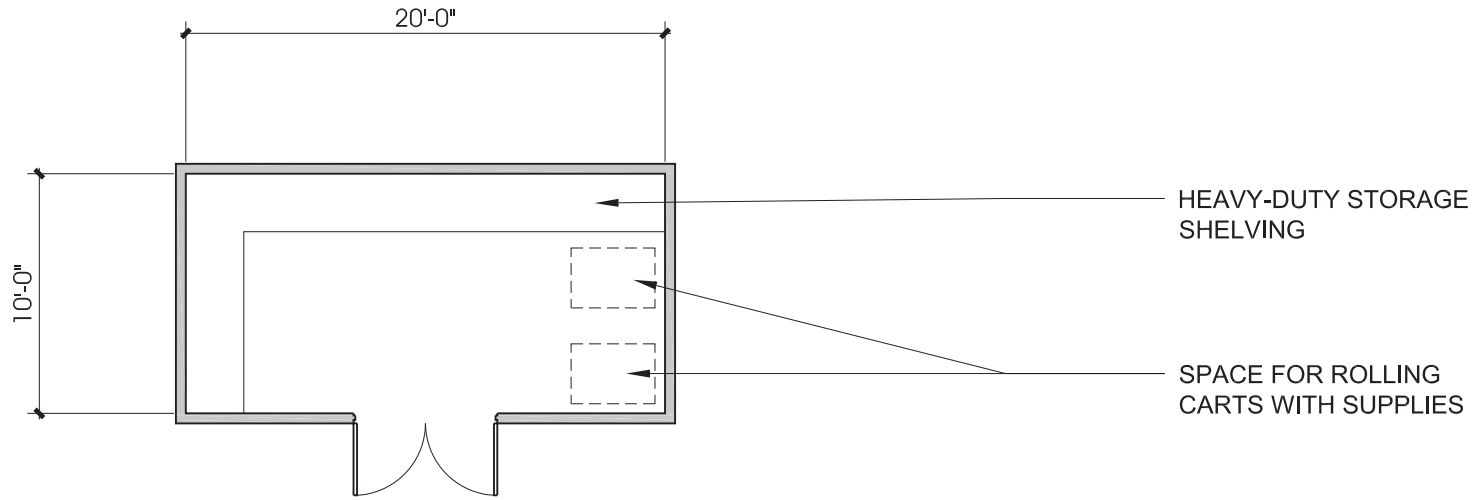
WINDOW	No
DOORS	Pair of 3'-0" wide doors with no center mullion
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board with stainless steel wall protection below 3'-0" above finished floor Ceramic tile at wet locations
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0"
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Easy to clean

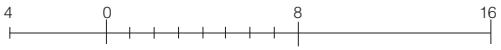
3. ENGINEERING

SECURITY	Storage room lockset
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/78 unoccupied Humidity set point: N/A Noise criterion: N/A Exhaust: 0.25 CFM/SF Outside air (CFM per SF/CFM per person): 0.12/0
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient, fluorescent light fixtures
PHONE/DATA	Wall outlets
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Heavy duty storage shelving
- Moveable carts


20'-0"
10'-0"
HEAVY-DUTY STORAGE SHELVING
SPACE FOR ROLLING CARTS WITH SUPPLIES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1. SPACE PROGRAM

SPACE DESCRIPTION	Entry vestibule
FUNCTION	Air lock
NUMBER OF OCCUPANTS	N/A
AREA (NASF)	180

2. ARCHITECTURAL

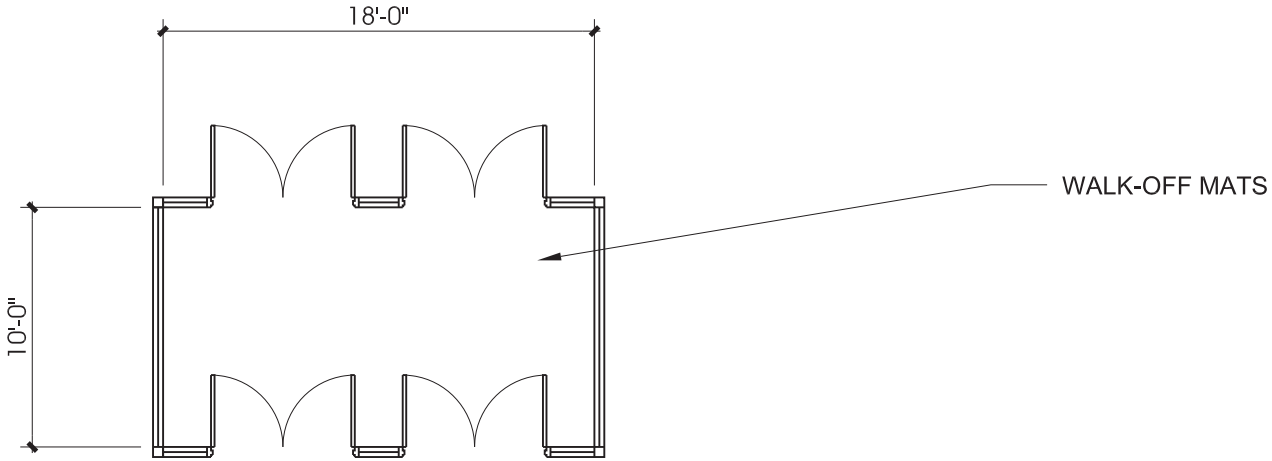
WINDOW	Yes, maximize daylight and views
DOORS	Oversized door width with ADA door openers
FLOOR	Walk-off mats
WALL	Glass
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Open and inviting

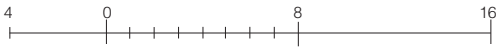
3. ENGINEERING

SECURITY	Maximize security, exterior CCTV, card reader
HVAC	Summer temperature: N/A Winter temperature: N/A Humidity set point: N/A Noise criterion: N/A Exhaust: N/A Outside air (CFM per SF/CFM per person): N/A Notes: Cabinet heater as required to control condensation
ELECTRICAL	120V power wall outlet
PLUMBING	Floor drain with trap primer
LIGHTING	Energy efficient fluorescent fixtures Lighting off during daytime hours
PHONE/DATA	Wall outlets, along with wireless capability
INTERCOM SYSTEM	None
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- None





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Public Spaces

B.1.a. Entry Vestibule

Individual Space Analysis 04.41

1. SPACE PROGRAM

SPACE DESCRIPTION	Grand Lobby
FUNCTION	Reception/Orientation/Gathering
NUMBER OF OCCUPANTS	285
AREA (NASF)	2,000

2. ARCHITECTURAL

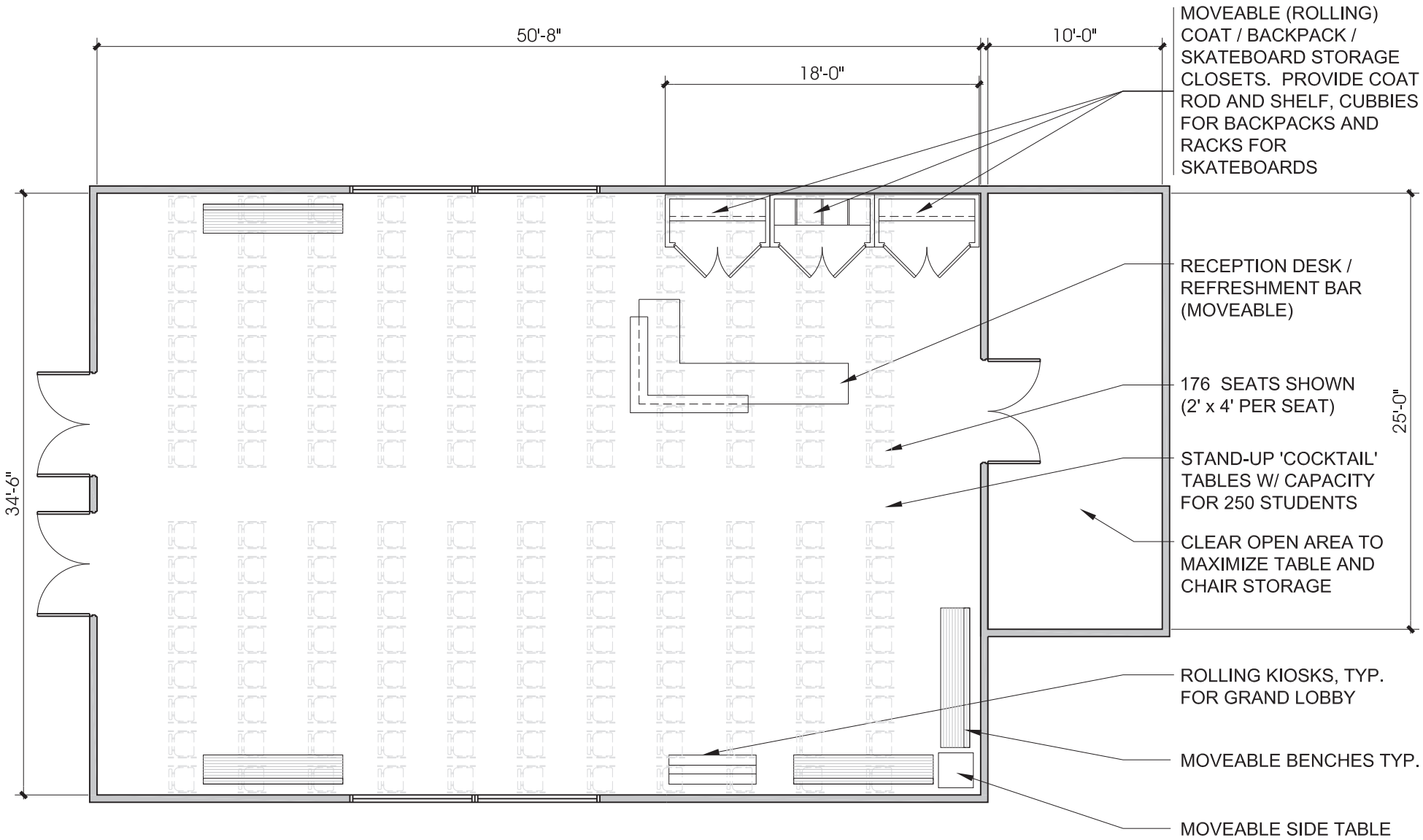
WINDOW	Yes, maximize daylight and views Clerestory and/or skylight
DOORS	Oversized door width & height
FLOOR	Wood floor & base
WALL	Painted gypsum board with plywood backing
CEILING	Acoustical tile ceiling
CEILING HEIGHT	15'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment Sound system and digital signage
GENERAL CHARACTER OF ROOM	Open flexible floor plan

3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 75 occupied/78 unoccupied Winter temperature: 70 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 35-40 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient LEDs or incandescent with dimming capability Track-type aimable display lighting
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Reception desk (with potential to be moveable)
- Moveable benches
- Rolling kiosks
- Stackable seating
- Side tables
- Signage including space names, gallery entry signage and donor recognition (by SUU)
- Moveable (rolling) visitor coat storage closets for coats, backpacks, umbrellas, skateboards, etc.



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Public Spaces

B.2.a. Grand Lobby

Individual Space Analysis 04.43

1. SPACE PROGRAM

SPACE DESCRIPTION	Museum Store
FUNCTION	Retail sales
NUMBER OF OCCUPANTS	13
AREA (NASF)	400

2. ARCHITECTURAL

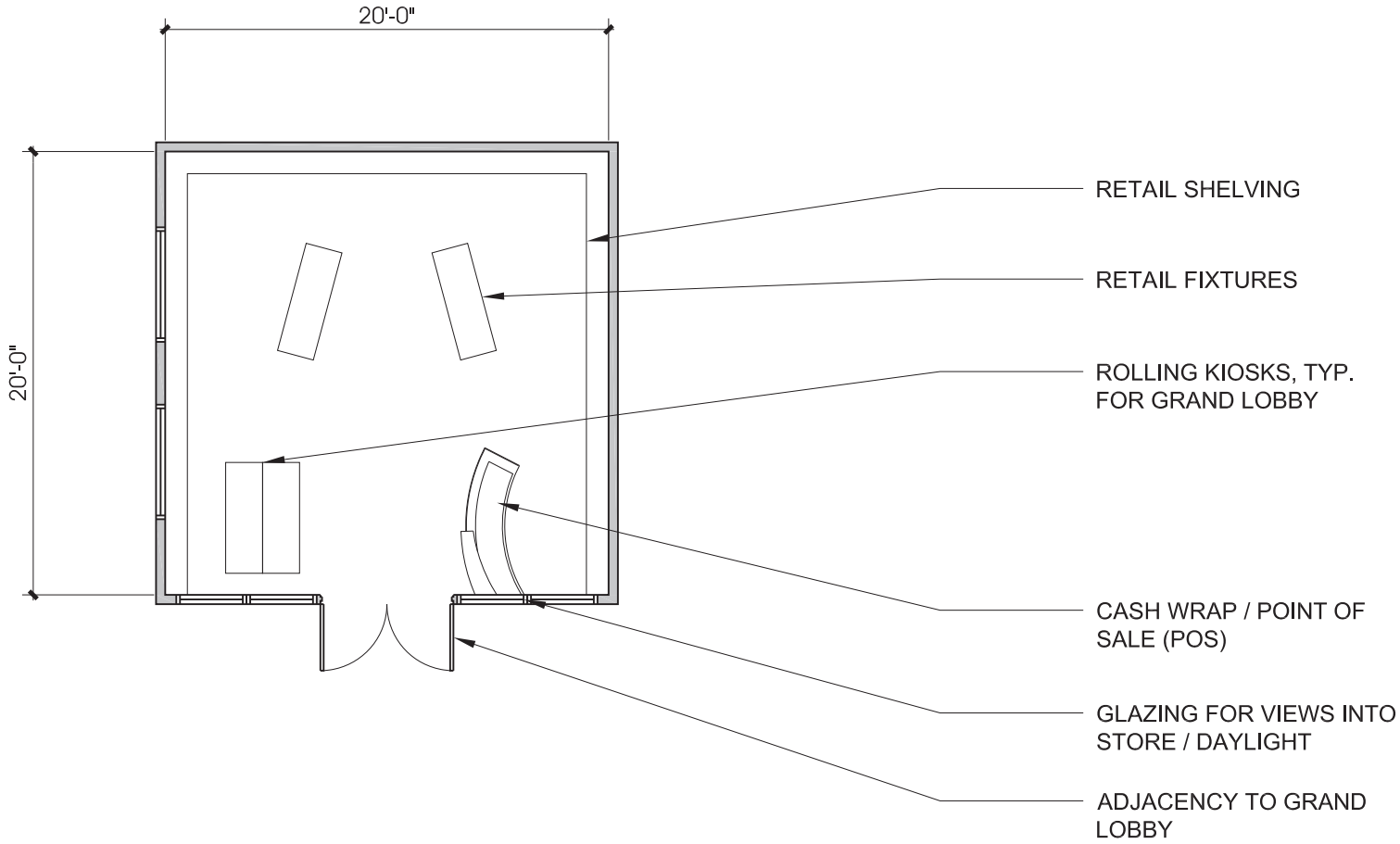
WINDOW	Maximize daylight and views in and out
DOORS	Pair of 3'-0" wide glass doors to maximze visibility
FLOOR	Wood floor and base
WALL	Painted gypsum board with plywood backing Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	10'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment Flat-panel TV
GENERAL CHARACTER OF ROOM	Open flexible floor plan

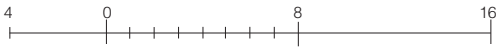
3. ENGINEERING

SECURITY	Need ability to lock Intrusion detection and CCTV
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 35-40 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.12/7.5
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent with dimming capability Minimum of two ceiling tracks with aimable fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Retail shelving
- Retail fixtures (moveable)
- Rolling kiosks (can move out to Grand Lobby)
- Storage cabinets
- Cash wrap/point-of-sale millwork


20'-0"
20'-0"
RETAIL SHELVING
RETAIL FIXTURES
ROLLING KIOSKS, TYP.
FOR GRAND LOBBY
CASH WRAP / POINT OF
SALE (POS)
GLAZING FOR VIEWS INTO
STORE / DAYLIGHT
ADJACENCY TO GRAND
LOBBY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1. SPACE PROGRAM

SPACE DESCRIPTION	Museum Store Storage
FUNCTION	Storage
NUMBER OF OCCUPANTS	1
AREA (NASF)	150

2. ARCHITECTURAL

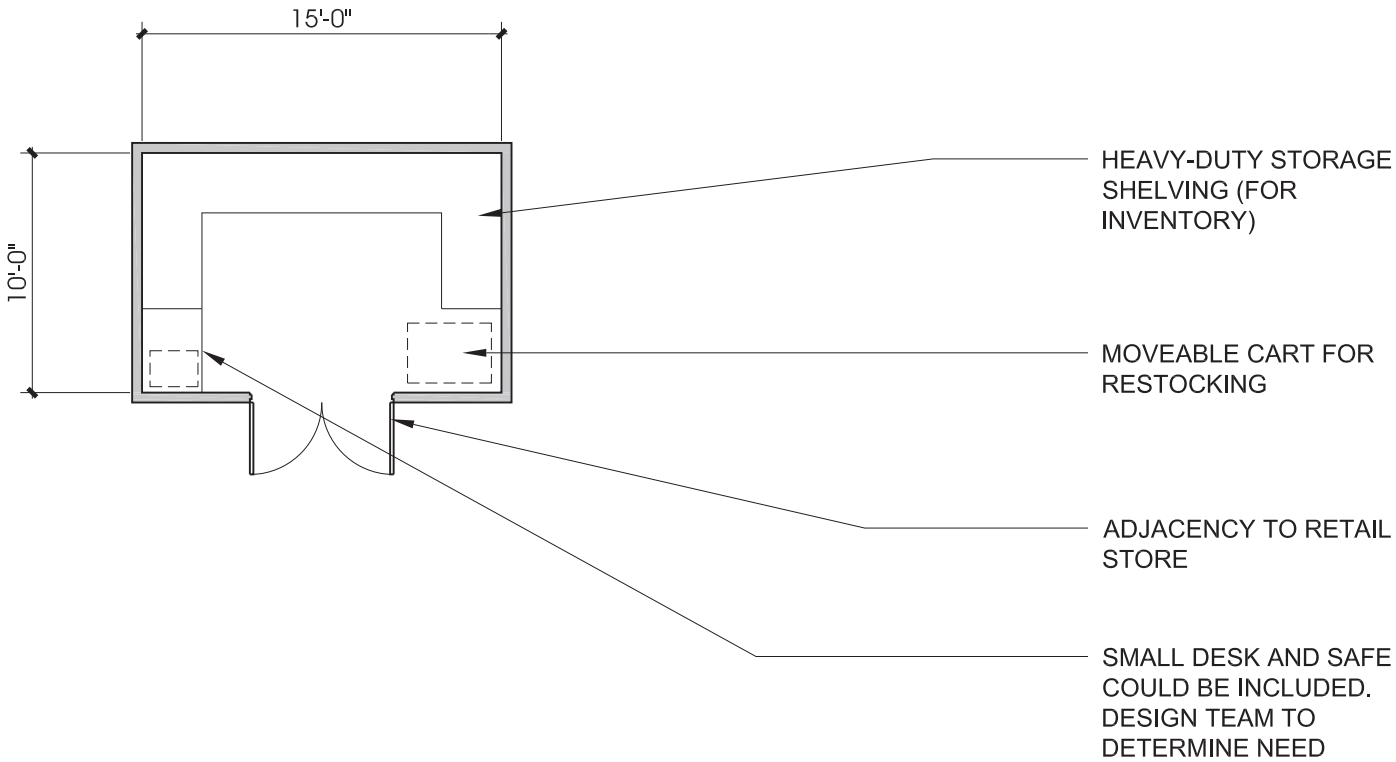
WINDOW	No
DOORS	Pair of 3'-0" wide doors
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board Studs and gypsym board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize storage but maintain some clear floor area for moveable cart for restocking

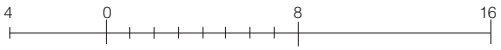
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: N/A Exhaust: 0.25 CFM/SF Outside air (CFM per SF/CFM per person): 0.12/0
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	None
INTERCOM SYSTEM	No
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Heavy-duty storage shelving
- Moveable cart for restocking
- Small desk and safe for money counting and storage could be included, design team to determine need


15'-0"
10'-0"
HEAVY-DUTY STORAGE SHELVING (FOR INVENTORY)
MOVEABLE CART FOR RESTOCKING
ADJACENCY TO RETAIL STORE
SMALL DESK AND SAFE COULD BE INCLUDED. DESIGN TEAM TO DETERMINE NEED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1. SPACE PROGRAM

SPACE DESCRIPTION	Public Restrooms
FUNCTION	Restroom
NUMBER OF OCCUPANTS	N/A
AREA (NASF)	420 each (provide two)

2. ARCHITECTURAL

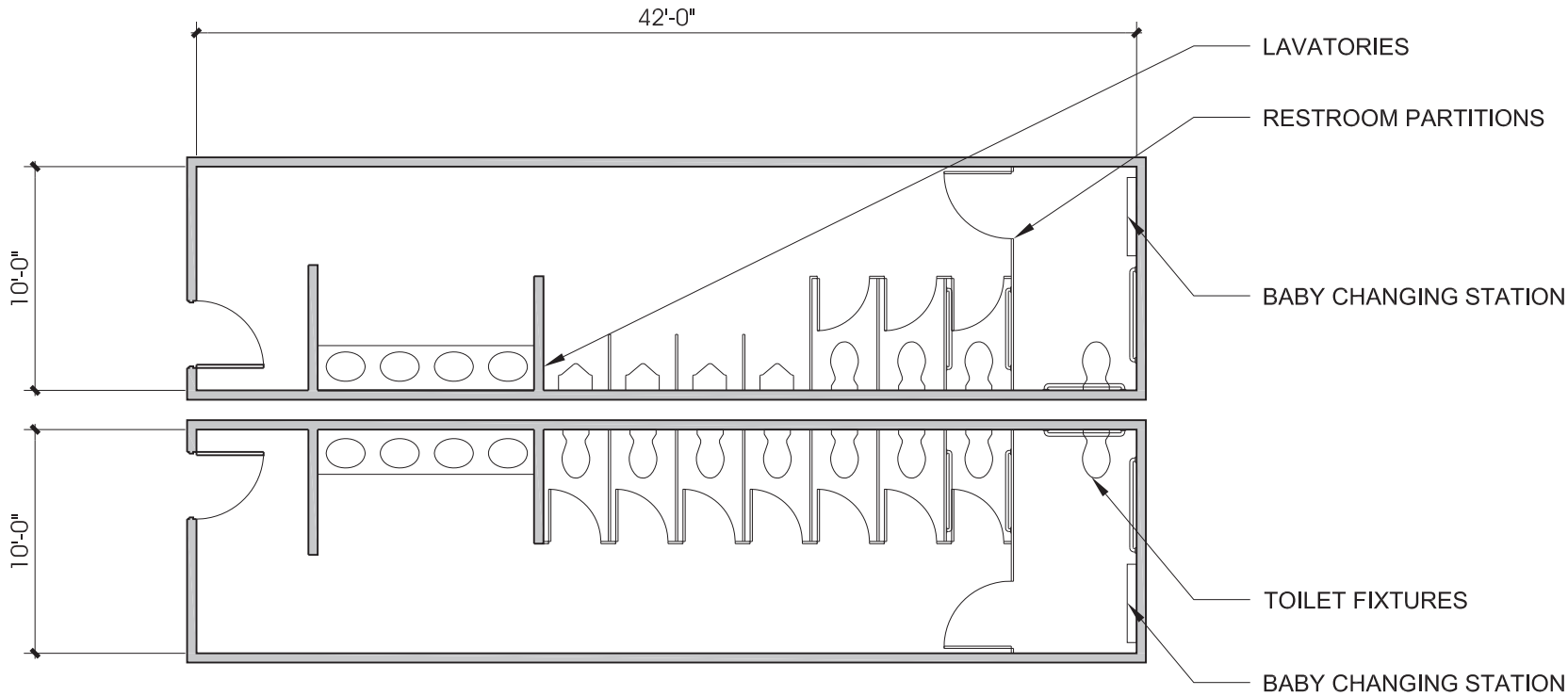
WINDOW	No
DOORS	Single 3'-0" wide doors
FLOOR	Tile floor and base
WALL	Tile, studs and wall board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	Provide sound attenuation insulation to mitigate sound transfer to adjacent spaces
GENERAL CHARACTER OF ROOM	Easy to clean

3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: N/A Winter temperature: N/A Humidity set point: N/A Noise criterion: 45-50 Exhaust: 50 CFM/water closet or urinal Outside air (CFM per SF/CFM per person): Transfer from adjoining Notes: Provide supplemental heat if any wall is exterior
ELECTRICAL	120V power wall outlets, possible electric hand-dryer connection
PLUMBING	Counter mount lavatories with single temperature sensor format Wall hung urinals, 1/8 GPF Wall hung water closets, 1.28 GPF Floor drain with trap primer
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	None
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Baby changing station
- Soap and paper towel dispensers (or electric hand dryers)
- Sanitary napkin disposal in Ladies toilet stalls
- Toilet seat cover dispenser
- Make-up mirror with small shelf separate from sinks to alleviate congestion and clogged drains



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Public Spaces

B.7.a. Public Restrooms

Individual Space Analysis 04.49

1. SPACE PROGRAM

SPACE DESCRIPTION	Janitor Room
FUNCTION	Janitorial
NUMBER OF OCCUPANTS	1
AREA (NASF)	100

2. ARCHITECTURAL

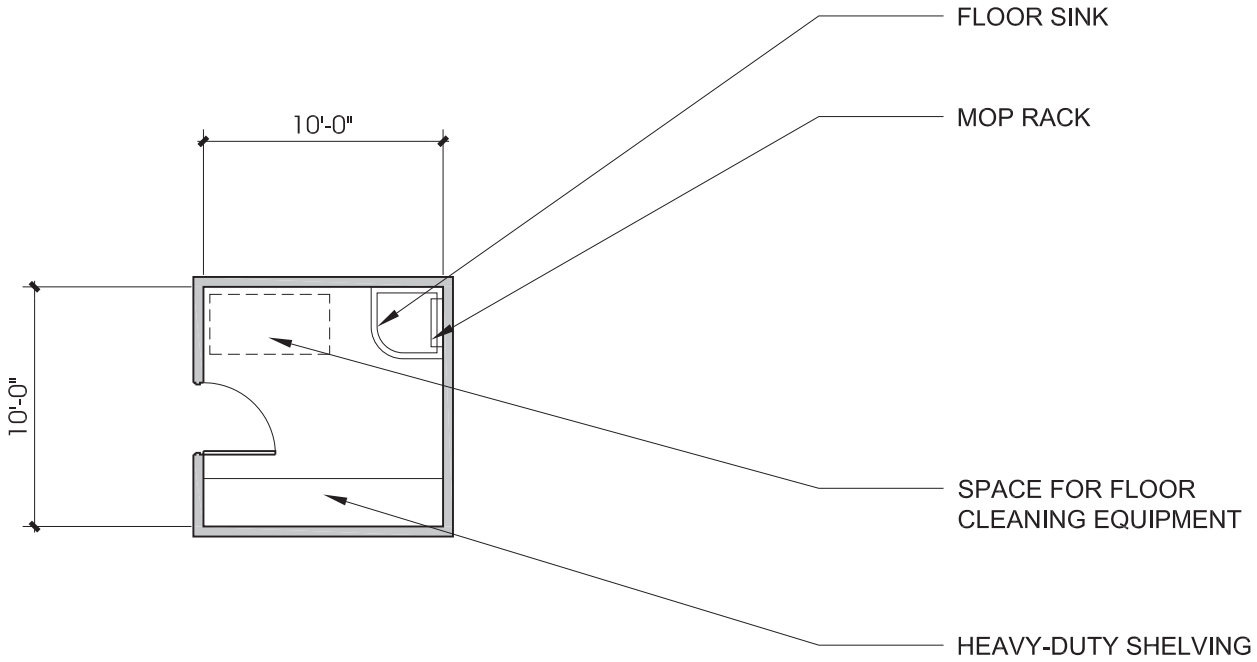
WINDOW	No
DOORS	Single 3'-0" wide door
FLOOR	Tile
WALL	Tile
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Easy to clean

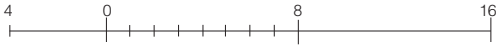
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: N/A Winter temperature: N/A Humidity set point: N/A Noise criterion: N/A Exhaust: 2 CFM/SF Outside air (CFM per SF/CFM per person): Transfer from adjoining
ELECTRICAL	120V power wall outlets, GFI
PLUMBING	Floor sink with 140F hot water, floor drain with trap primer
LIGHTING	Energy efficient fluorescent light fixture
PHONE/DATA	None
INTERCOM SYSTEM	None
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Heavy-duty shelving
- Mop rack
- Floor cleaning equipment


FLOOR SINK
MOP RACK
10'-0"
10'-0"
SPACE FOR FLOOR
CLEANING EQUIPMENT
HEAVY-DUTY SHELVING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1. SPACE PROGRAM

SPACE DESCRIPTION	Museum Director's Office
FUNCTION	Office
NUMBER OF OCCUPANTS	1
AREA (NASF)	180

2. ARCHITECTURAL

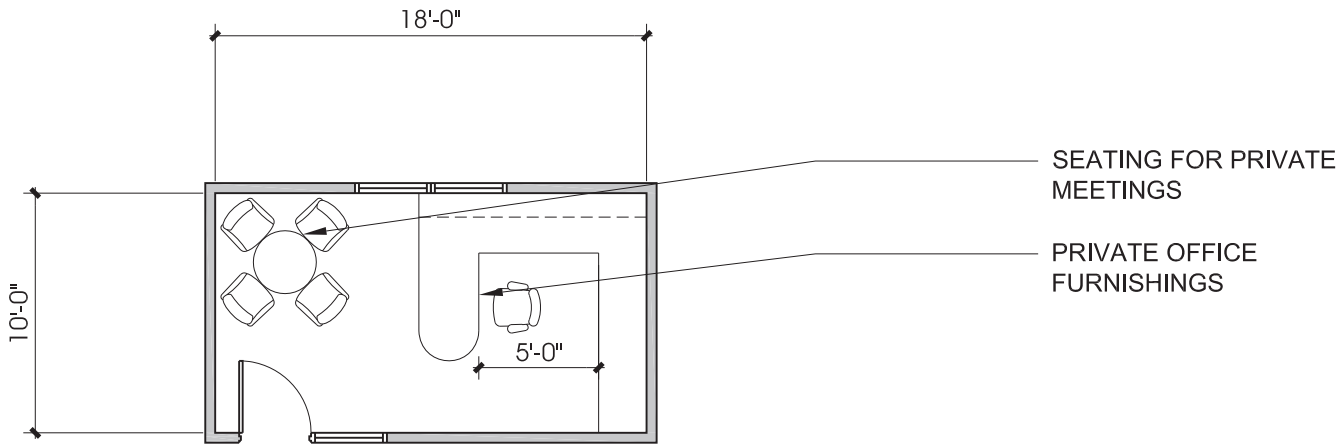
WINDOW	Yes, maximize daylight and views
DOORS	Single 3'-0" wide door
FLOOR	Carpet/wood base
WALL	Painted gypsum board, tackable surface Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	Provide sound attenuation insulation to mitigate sound transfer to adjacent spaces
GENERAL CHARACTER OF ROOM	Private office

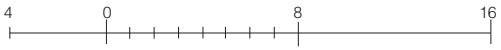
3. ENGINEERING

SECURITY	High-security lockset
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 30-35 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.6/5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes, with volume control
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Office furniture with lockable cash drawer for donations
- Table and chairs for private meetings





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Museum Administration

C.1.a. Museum Director's Office

Individual Space Analysis 04.53

1. SPACE PROGRAM

SPACE DESCRIPTION	Director's Assistant Workstation
FUNCTION	Administrative workstation
NUMBER OF OCCUPANTS	1
AREA (NASF)	144

2. ARCHITECTURAL

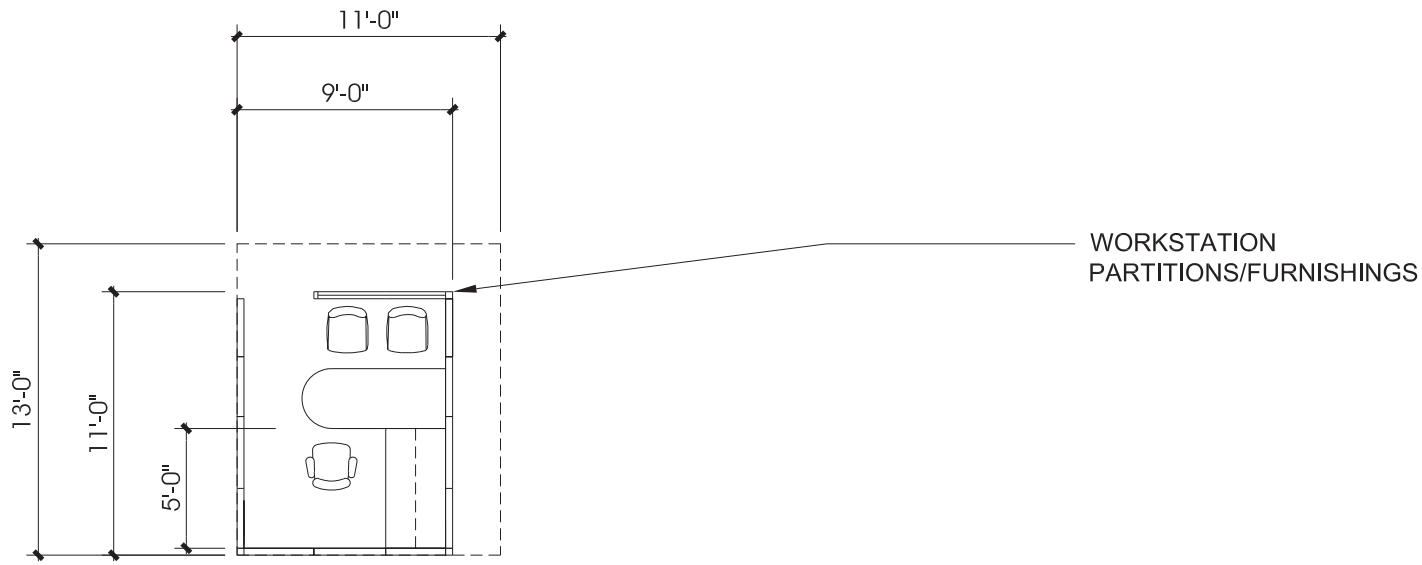
WINDOW	Yes, maximize daylight and views
DOORS	Minimum 3'-0" wide opening
FLOOR	Carpet/wood base at gypsum board walls
WALL	Painted gypsum board, tackable surface
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Workstation

3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 30-35 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.6/5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes, with volume control
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Office furniture system with tackable surface and vision panels where appropriate



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Museum Administration

C.2.a. Director's Assistant Workstation

Individual Space Analysis 04.55

1. SPACE PROGRAM

SPACE DESCRIPTION	Volunteer's Director Workstation
FUNCTION	Administrative Workstation
NUMBER OF OCCUPANTS	1
AREA (NASF)	100

2. ARCHITECTURAL

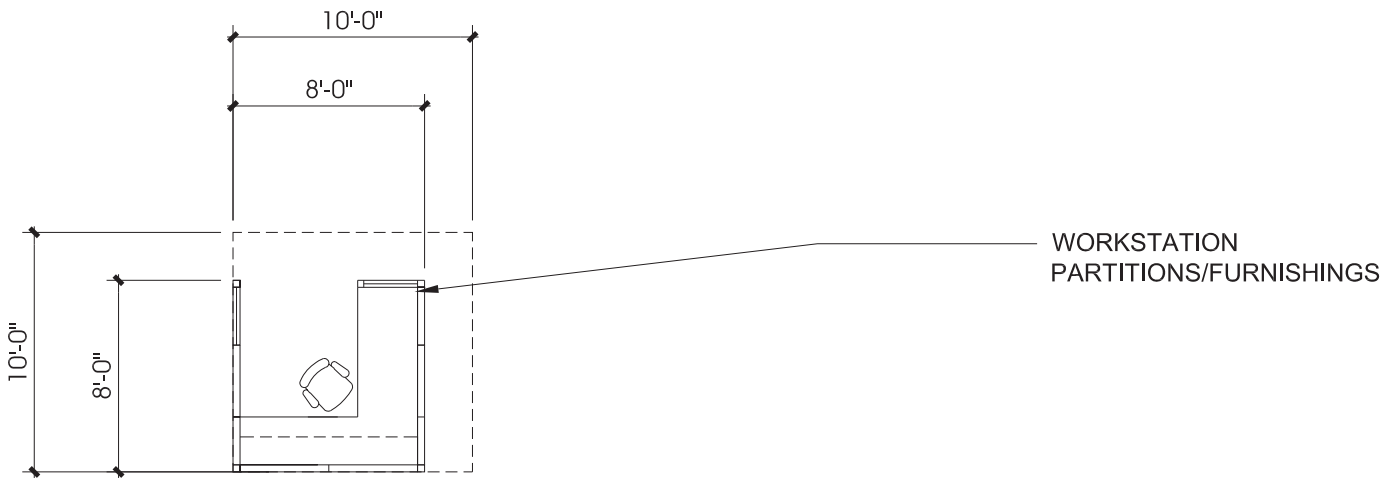
WINDOW	Yes, maximize daylight and views
DOORS	Minimum 3'-0" wide opening
FLOOR	Carpet/wood base at gypsum board walls
WALL	Painted gypsum board, tackable surface
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Workstation

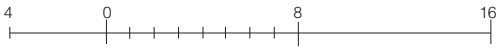
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 35-40 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes, with volume control
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Office furniture system with tackable surface and vision panels where appropriate





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Museum Administration

C.2.b. Volunteer's Director Workstation

Individual Space Analysis 04.57

1. SPACE PROGRAM

SPACE DESCRIPTION	Staff and Docent Break Room
FUNCTION	Break Room
NUMBER OF OCCUPANTS	15
AREA (NASF)	300

2. ARCHITECTURAL

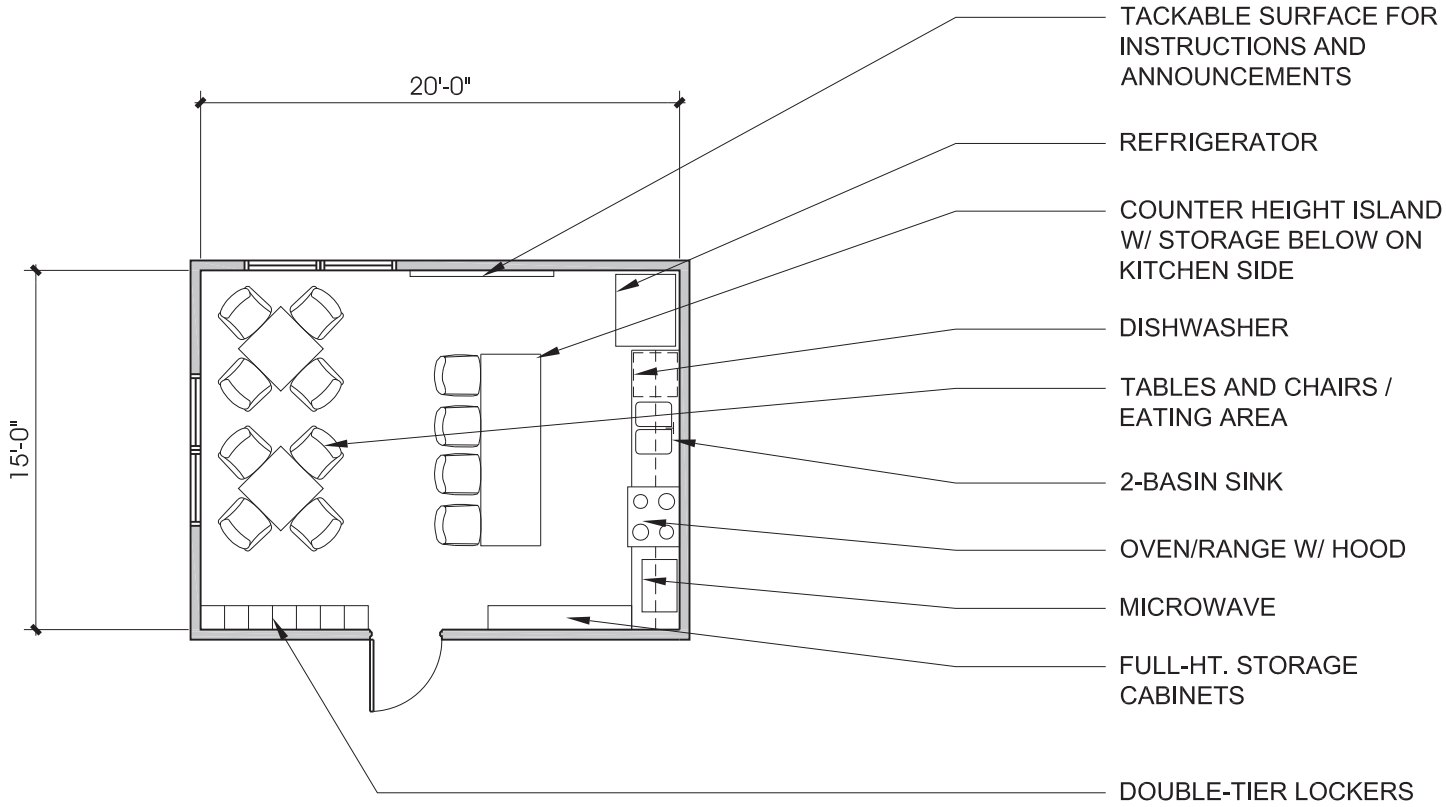
WINDOW	Yes, maximize daylight and views
DOORS	Single 3'-0" wide door with smoke seals to contain odors
FLOOR	Tile floor/tile base
WALL	Painted gypsum board, tackable surface, tile or stainless steel at wet areas Studs and wall board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Relaxing break room and table seating, doubles as event prep kitchen Event prep will probably flow out into corridor—ensure exit width remains

3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 40-45 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/5
ELECTRICAL	120V power wall outlets, GFI power outlets, multiple circuits, dedicated outlets for oven/range and microwave Power for event warming ovens
PLUMBING	2-compartment sink with single hot and cold handle faucet and disposer Dishwasher Refrigerator with filtered water and ice-dispenser
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes, with volume control
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Refrigerator with filtered water and ice dispenser
- Dishwasher
- Microwave
- Lockers
- Kitchen and storage cabinets



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Museum Administration

C.3.b. Staff and Docent Break Room

Individual Space Analysis 04.59

1. SPACE PROGRAM

SPACE DESCRIPTION	Copy-Fax-Mail Supply Room
FUNCTION	Copy-Fax-Mail Supply
NUMBER OF OCCUPANTS	1
AREA (NASF)	100

2. ARCHITECTURAL

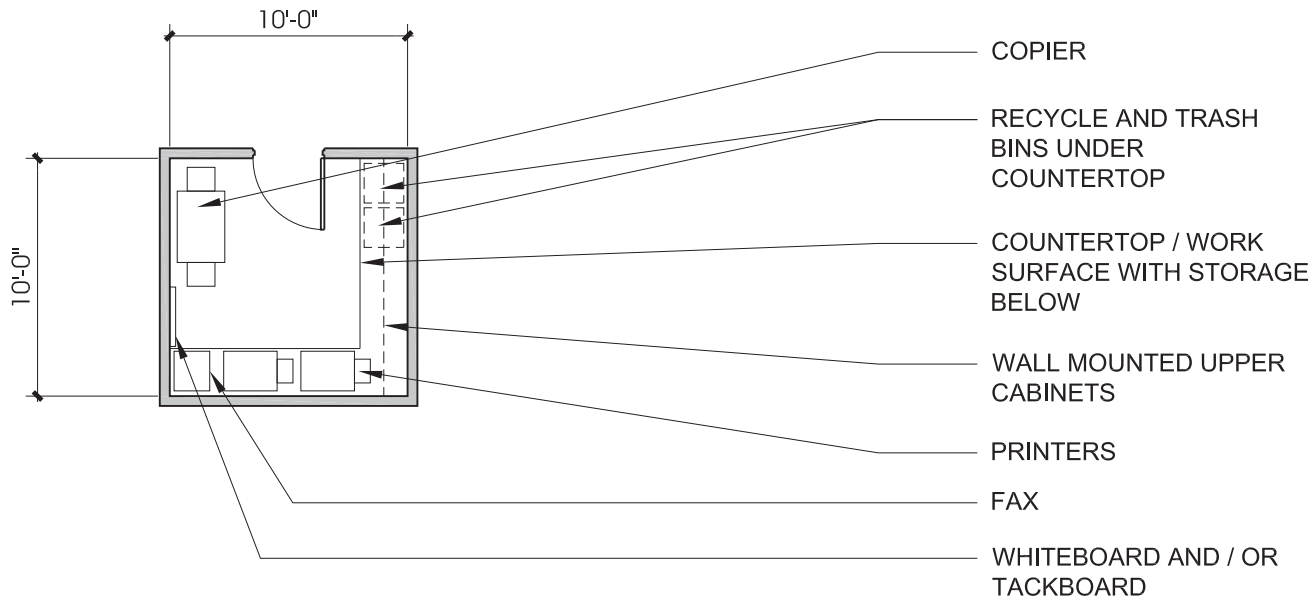
WINDOW	Yes, maximize daylight and views
DOORS	Single 3'-0" wide door
FLOOR	Carpet/rubber base
WALL	Painted gypsum board
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize storage and efficiency

3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 40-45 Exhaust: 0.5 CFM/SF Outside air (CFM per SF/CFM per person): 0.06/5
ELECTRICAL	120V power wall outlets Dedicated power outlet for copier
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Marker boards
- Clock
- Copy machine
- Printers
- Fax machine
- Tackboard



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Museum Administration

C.3.c. Copy-Fax-Mail-Supply Room

Individual Space Analysis 04.61

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1. SPACE PROGRAM

SPACE DESCRIPTION	Administrative File/Storage Room
FUNCTION	Storage
NUMBER OF OCCUPANTS	1
AREA (NASF)	100

2. ARCHITECTURAL

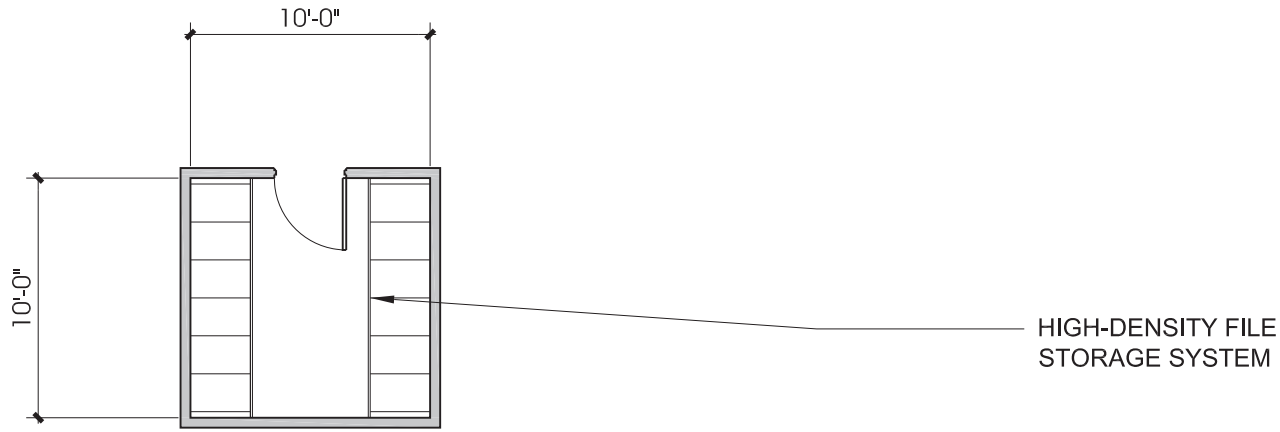
WINDOW	No
DOORS	Single 3'-0" wide door
FLOOR	Carpet/rubber base
WALL	Painted gypsum board Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0"
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize storage

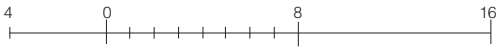
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: N/A Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.12/-
ELECTRICAL	120V power wall outlet
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	One wall outlet
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- High density file storage





Museum Administration

C.3.e. Administrative File/Storage Room

Individual Space Analysis 04.63

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1. SPACE PROGRAM

SPACE DESCRIPTION	Interior Receiving
FUNCTION	Shipping/Receiving
NUMBER OF OCCUPANTS	1
AREA (NASF)	200

2. ARCHITECTURAL

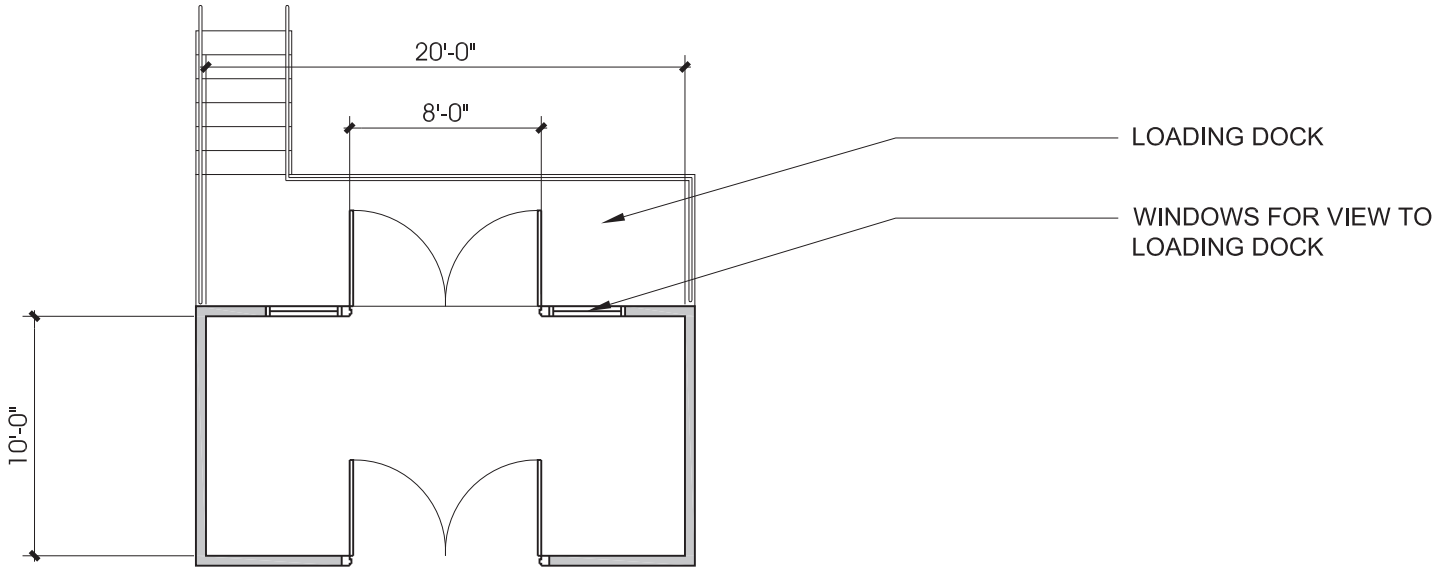
WINDOW	Yes
DOORS	Pair of 4'-0" wide by 8'-0" high doors with no center mullion
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board
CEILING	Acoustical tile ceiling
CEILING HEIGHT	10'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Open flexible floor plan

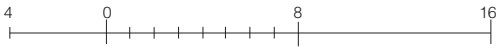
3. ENGINEERING

SECURITY	Intrusion detection and exterior CCTV Card reader
HVAC	Summer temperature: 78 occupied/78 unoccupied Winter temperature: 68 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 40-45 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/5
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Dock Leveler may be required
- Clock





Collections and Conservation

D.1.b. Interior Receiving

Individual Space Analysis 04.65

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1. SPACE PROGRAM

SPACE DESCRIPTION	Temporary Art Storage
FUNCTION	"Dirty" area to hold art prior to processing
NUMBER OF OCCUPANTS	1
AREA (NASF)	150

2. ARCHITECTURAL

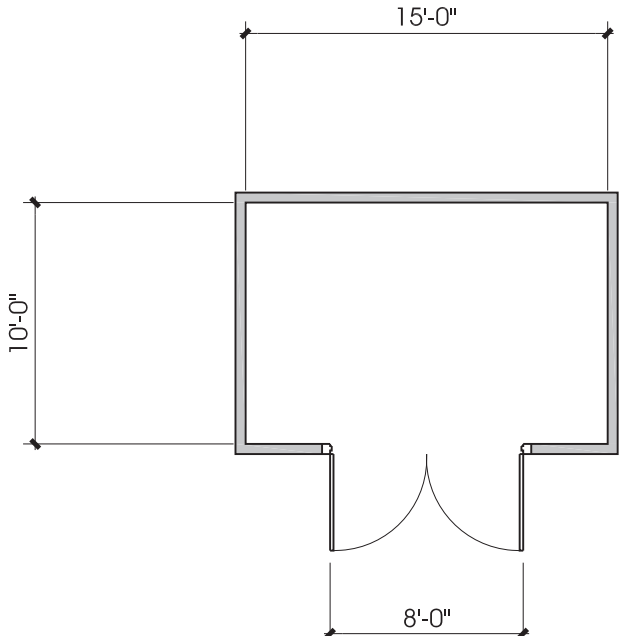
WINDOW	No
DOORS	Pair of 4'-0" wide by 8'-0" high doors
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	10'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Open flexible floor plan

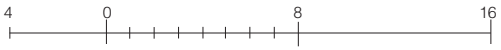
3. ENGINEERING

SECURITY	Intrusion detection and exterior CCTV Card reader
HVAC	Summer temperature: 78 occupied/78 unoccupied Winter temperature: 68 occupied/68 unoccupied Humidity set point: N/A Noise criterion: N/A Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.12/-
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- None





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Collections and Conservation

D.1.c. Temporary Art Storage

Individual Space Analysis 04.67

1. SPACE PROGRAM

SPACE DESCRIPTION	Fireproof Vault
FUNCTION	Vault
NUMBER OF OCCUPANTS	N/A
AREA (NASF)	150

2. ARCHITECTURAL

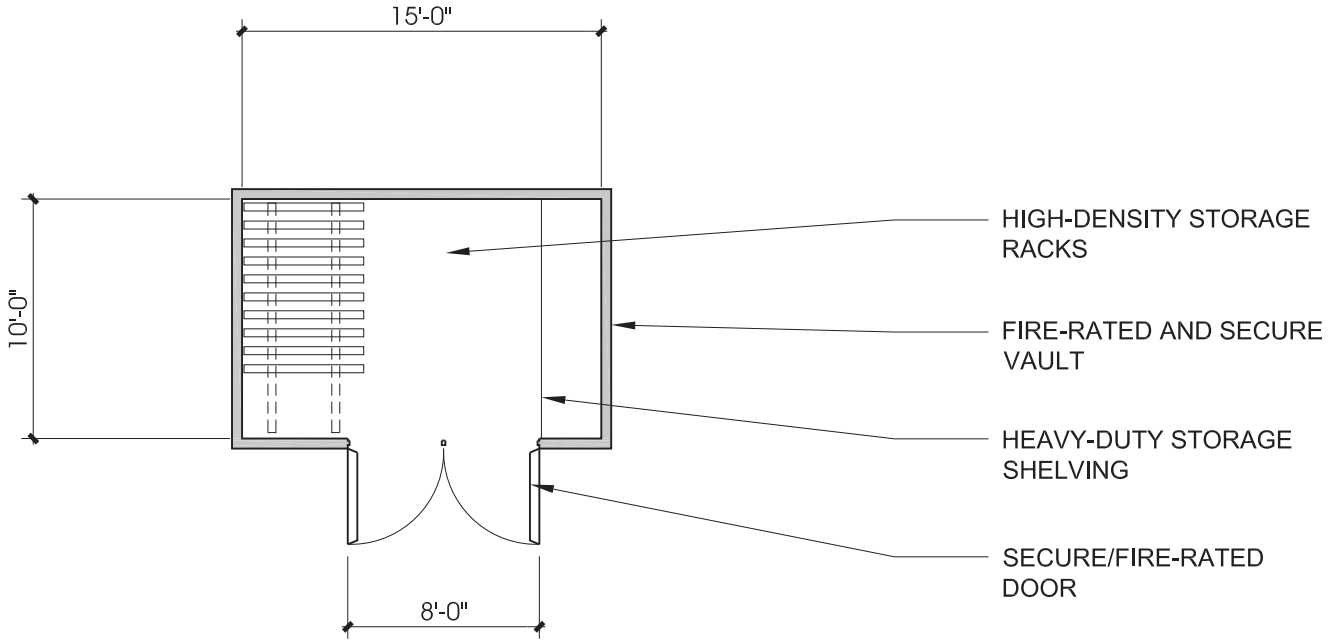
WINDOW	No
DOORS	Pair of 4'-0" wide fireproof doors
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	10'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize storage capacity

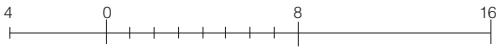
3. ENGINEERING

SECURITY	Intrusion detection and exterior CCTV Card reader
HVAC	Summer temperature: 78 occupied/78 unoccupied Winter temperature: 68 occupied/68 unoccupied Humidity set point: N/A Noise criterion: N/A Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.12/-
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	Security grilles in HVAC ducts

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- High density storage racks
- Heavy-duty shelving





Collections and Conservation

D.1.d. Fire Proof Vault

Individual Space Analysis 04.69

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1. SPACE PROGRAM

SPACE DESCRIPTION	3-Dimensional Collections Storage
FUNCTION	Storage
NUMBER OF OCCUPANTS	1
AREA (NASF)	250

2. ARCHITECTURAL

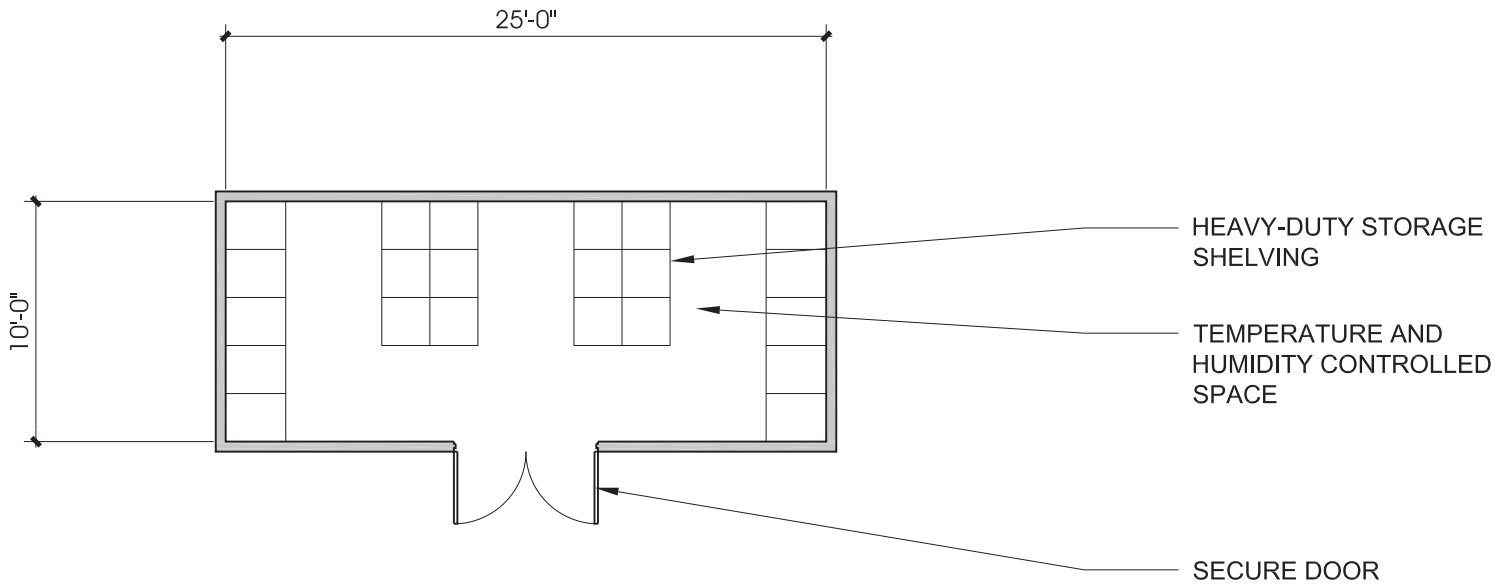
WINDOW	No
DOORS	Pair of 4'-0" doors with no center mullion
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board Studs and gypsum board to structure above
CEILING	Not required
CEILING HEIGHT	10'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize storage

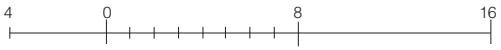
3. ENGINEERING

SECURITY	Intrusion detection and exterior CCTV Card reader
HVAC	Summer temperature: 68 occupied/68 unoccupied Winter temperature: 68 occupied/68 unoccupied Humidity set point: 30% +/- 5% Noise criterion: N/A Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.12/- Notes: Assume ceramic and bronze
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	Security grilles in HVAC ducts

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- High density storage racks
- Heavy-duty shelving





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Collections and Conservation

D.2.a. 3-Dimensional Collections Storage

Individual Space Analysis 04.71

1. SPACE PROGRAM

SPACE DESCRIPTION	2-Dimensional Reserve Collections Storage
FUNCTION	Storage
NUMBER OF OCCUPANTS	1
AREA (NASF)	500

2. ARCHITECTURAL

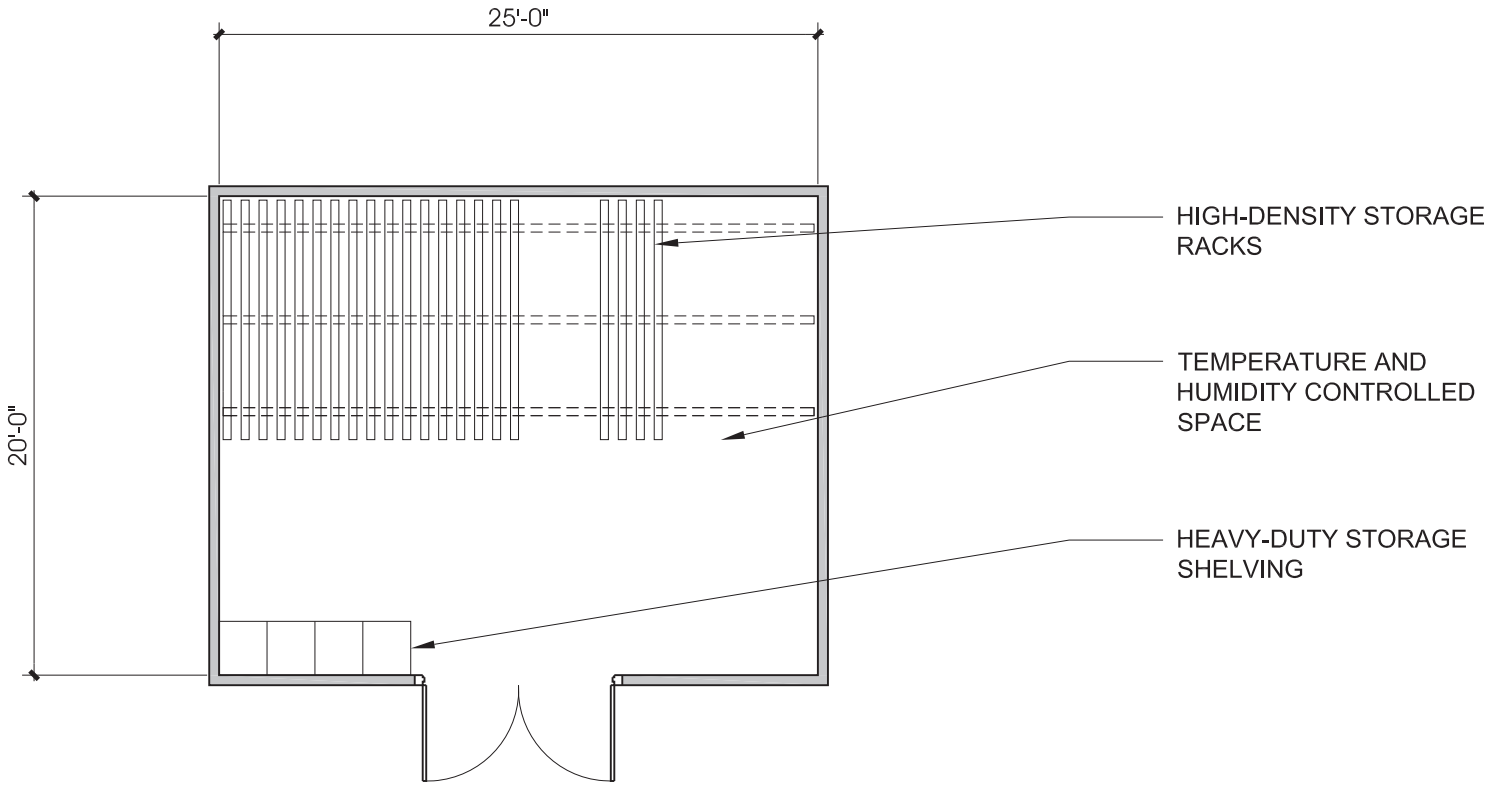
WINDOW	No
DOORS	Pair of 4'-0" doors
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board Studs and gypsum board to structure above
CEILING	Not required
CEILING HEIGHT	10'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize storage

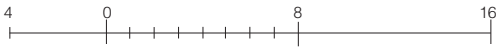
3. ENGINEERING

SECURITY	Intrusion detection and exterior CCTV Card reader
HVAC	Summer temperature: 68 occupied/68 unoccupied Winter temperature: 68 occupied/68 unoccupied Humidity set point: 50% +/- 5% Noise criterion: N/A Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.12/- Notes: Assume paintings and paper
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- High density storage racks
- Heavy-Duty shelving





Collections and Conservation

D.2.b. 2-Dimensional Reserve Collections Storage

Individual Space Analysis 04.73

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1. SPACE PROGRAM

SPACE DESCRIPTION	2-Dimensional Permanent Collections Storage
FUNCTION	Storage
NUMBER OF OCCUPANTS	1
AREA (NASF)	500

2. ARCHITECTURAL

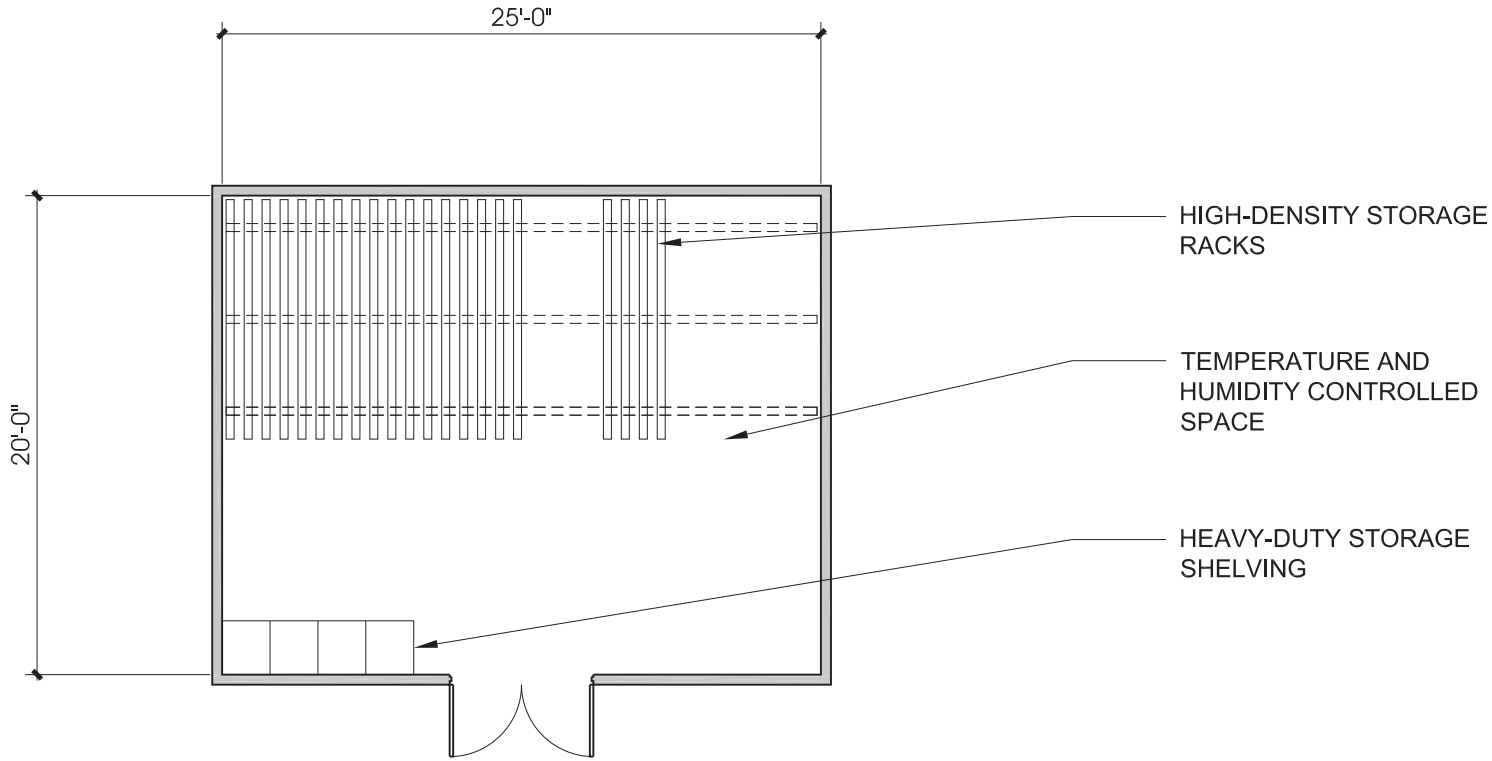
WINDOW	No
DOORS	Pair of 4'-0" doors
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board Studs and gypsum board to structure above
CEILING	Not required
CEILING HEIGHT	10'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize storage

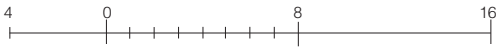
3. ENGINEERING

SECURITY	Intrusion detection and exterior CCTV Card reader
HVAC	Summer temperature: 68 occupied/68 unoccupied Winter temperature: 68 occupied/68 unoccupied Humidity set point: 50% +/- 5% Noise criterion: N/A Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.12/- Notes: Assume paintings and paper
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- High density storage racks
- Heavy-Duty shelving





Collections and Conservation

D.2.c. 2-Dimensional Permanent Collections Storage

Individual Space Analysis 04.75

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1. SPACE PROGRAM

SPACE DESCRIPTION	General Work Room
FUNCTION	Frame/Mat artwork
NUMBER OF OCCUPANTS	3
AREA (NASF)	250

2. ARCHITECTURAL

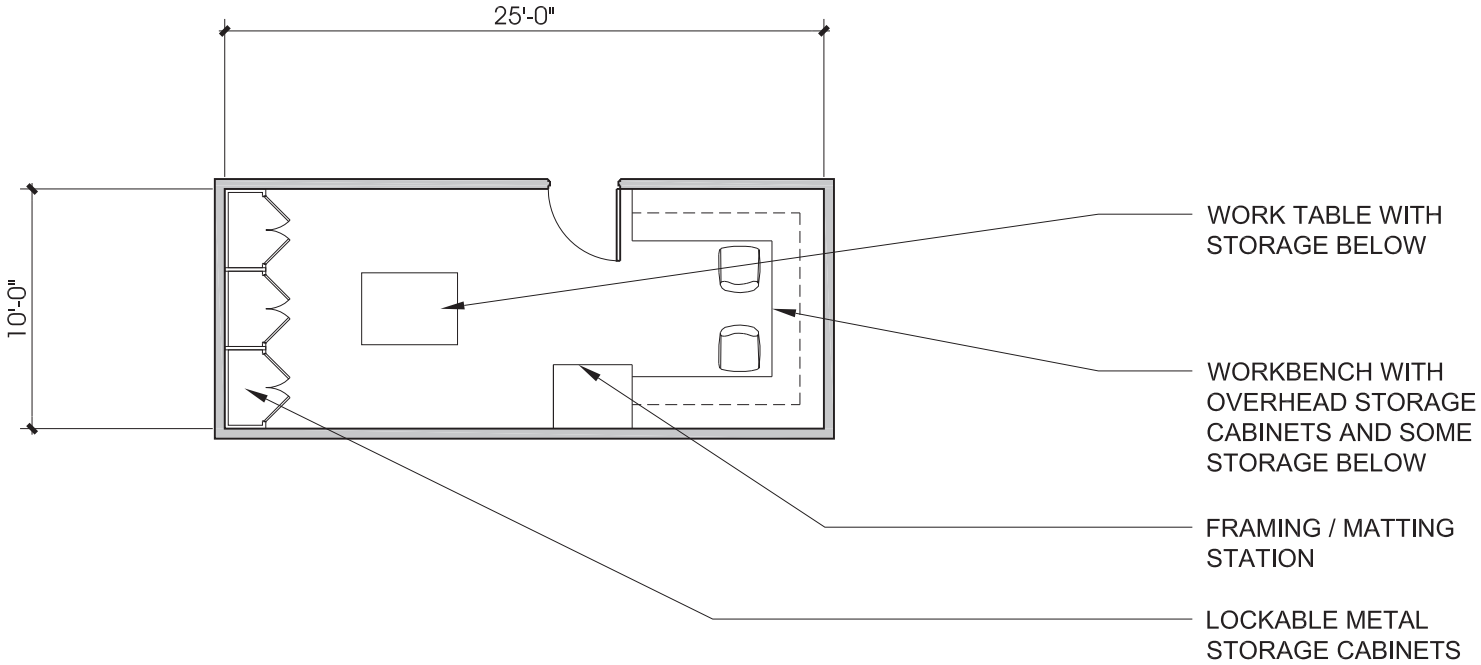
WINDOW	No
DOORS	Single 3'-0" wide door
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board
CEILING	Not required
CEILING HEIGHT	10'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize efficiency

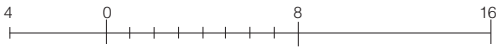
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: 30% - 50% +/- 5% when artifact present N/A otherwise Noise criterion: 35-40 Exhaust: General at 0.5 CFM/SF, snorkel at workstation Outside air (CFM per SF/CFM per person): 0.18/10
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures and full-spectrum task lighting
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Work benches with overhead storage and some storage below
- Work table with storage below
- Framing/Matting station





Collections and Conservation

D.3.a. General Work Room

Individual Space Analysis 04.77

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1. SPACE PROGRAM

SPACE DESCRIPTION	Conservation Lab
FUNCTION	Artwork restoration/repair
NUMBER OF OCCUPANTS	2
AREA (NASF)	180

2. ARCHITECTURAL

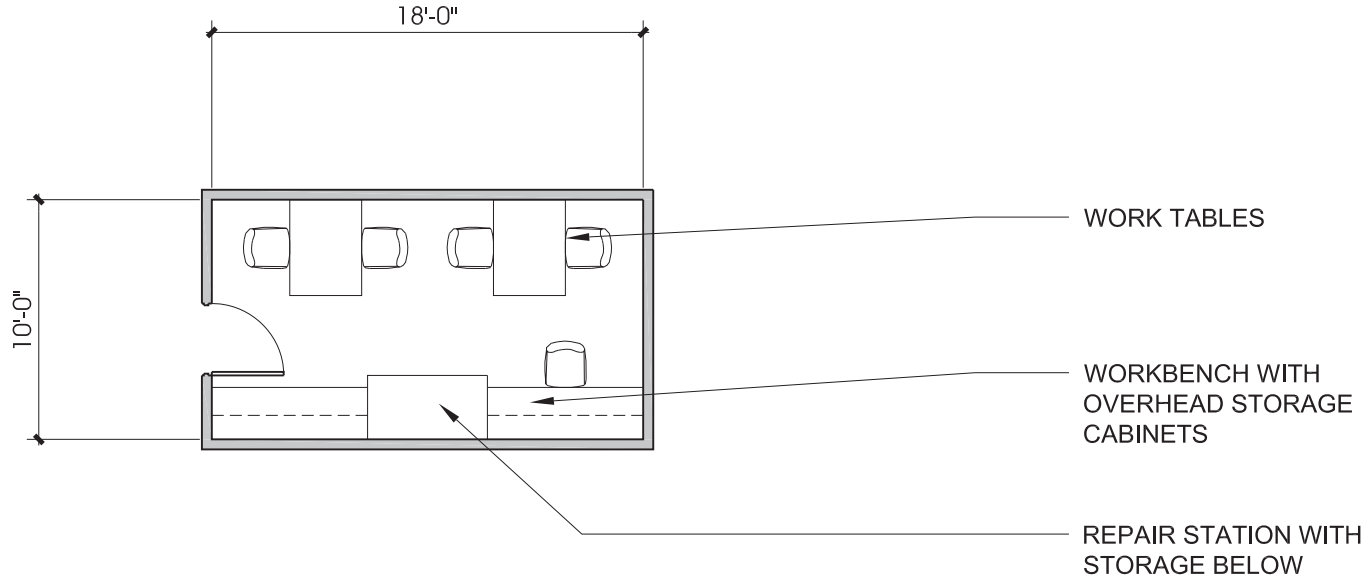
WINDOW	No
DOORS	Single 3'-0" wide door
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board
CEILING	Not required
CEILING HEIGHT	10'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize efficiency

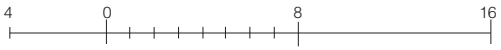
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: 30% - 50% +/- 5% when artifact present N/A otherwise Noise criterion: 35-40 Exhaust: General at 0.5 CFM/SF, snorkel at workstation Outside air (CFM per SF/CFM per person): 0.18/10
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures and full-spectrum task lighting
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Work benches with overhead storage and some storage below
- Work table with storage below
- Framing/Matting station





Collections and Conservation

D.3.b. Conservation Lab

Individual Space Analysis 04.79

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1. SPACE PROGRAM

SPACE DESCRIPTION	Supply Storage
FUNCTION	Storage
NUMBER OF OCCUPANTS	1
AREA (NASF)	150

2. ARCHITECTURAL

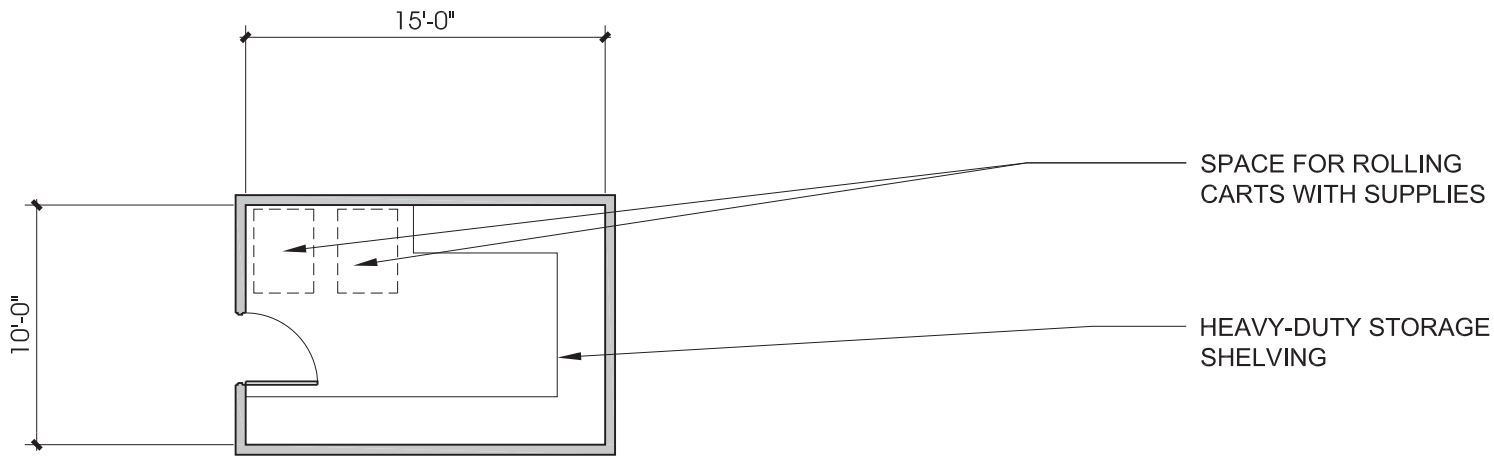
WINDOW	No
DOORS	Single 3'-0" wide door
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize storage

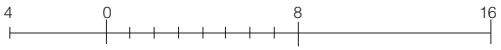
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: N/A Winter temperature: N/A Humidity set point: N/A Noise criterion: N/A Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.12/-
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Heavy-duty storage shelving
- Moveable carts





Collections and Conservation

D.3.d. Supply Storage

Individual Space Analysis 04.81

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1. SPACE PROGRAM

SPACE DESCRIPTION	Registrar's Office
FUNCTION	Private Office
NUMBER OF OCCUPANTS	1
AREA (NASF)	120

2. ARCHITECTURAL

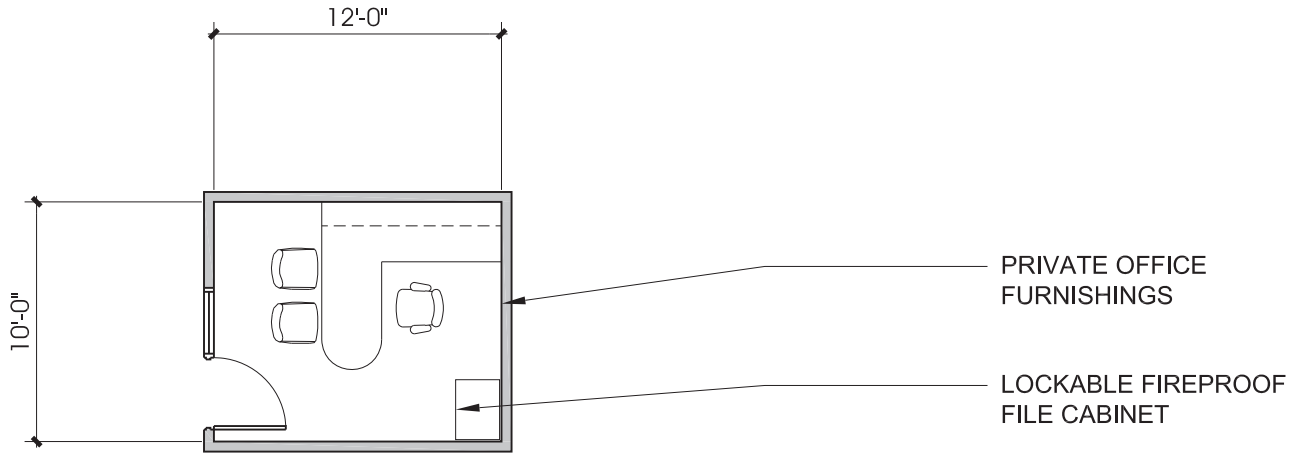
WINDOW	Yes, maximize daylight and views
DOORS	Single 3'-0" wide door
FLOOR	Carpet/wood base
WALL	Painted gypsum board, tackable surface Studs and gypsum board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Private office

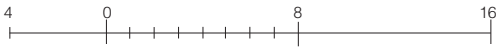
3. ENGINEERING

SECURITY	High-security lockset
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 30-35 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.6/5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes, with volume control
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Office furniture with lockable cash drawer for donations
- Table and chairs for private meetings





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Collections and Conservation

D.4.a. Registrar's Office

Individual Space Analysis 04.83

1. SPACE PROGRAM

SPACE DESCRIPTION	Student Workstations
FUNCTION	Workstations
NUMBER OF OCCUPANTS	4
AREA (NASF)	96

2. ARCHITECTURAL

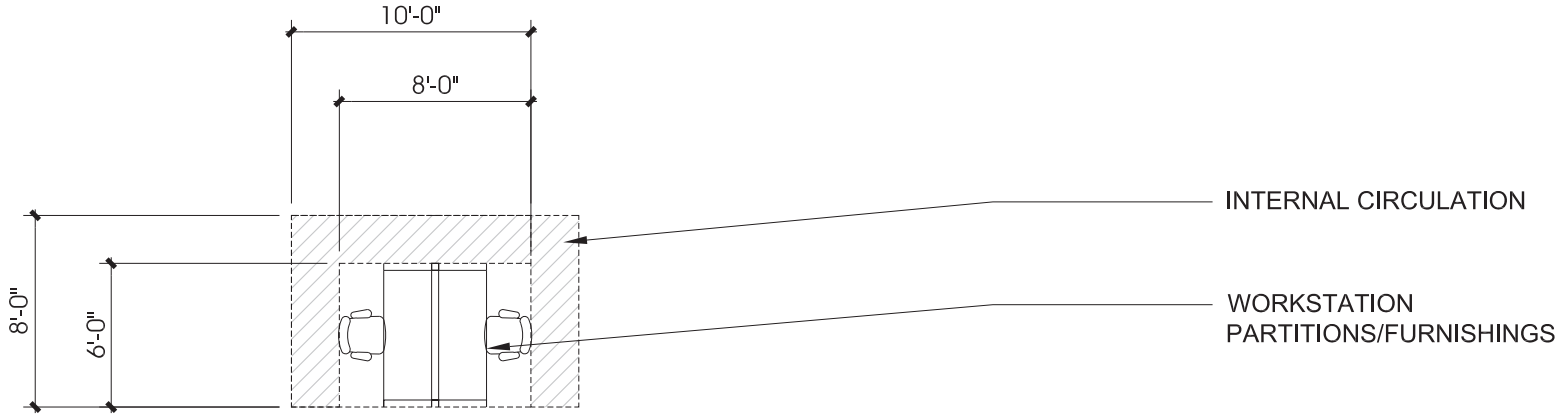
WINDOW	Yes, maximize daylight and views
DOORS	Minimum 3'-0" wide opening
FLOOR	Carpet/wood base at gypsum board walls
WALL	Painted gypsum board, tackable surface
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Workstation

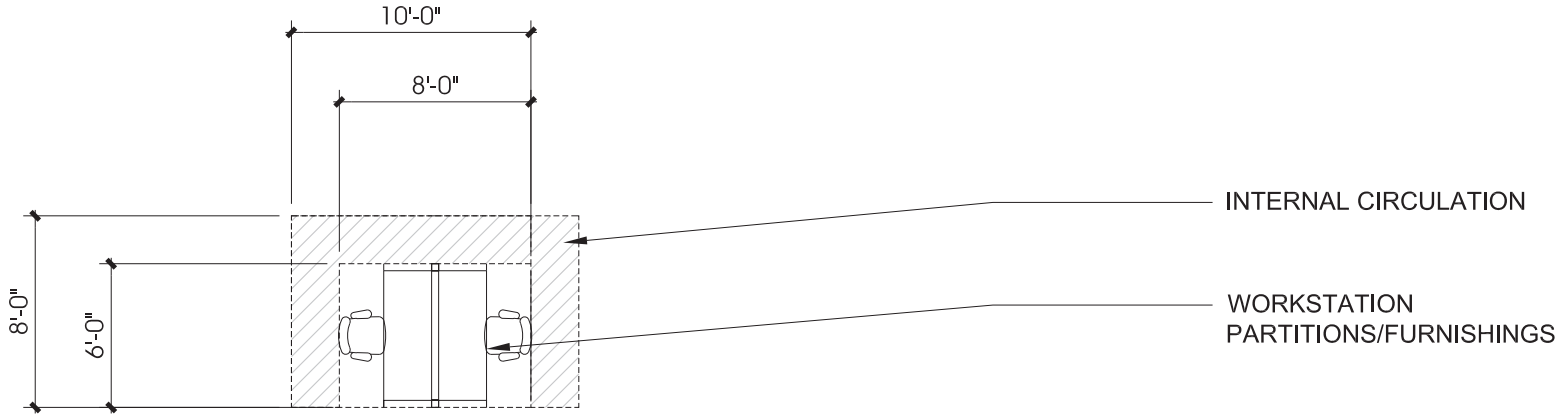
3. ENGINEERING

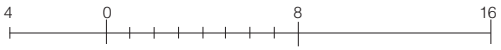
SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 35-40 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes, with volume control
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Office furniture system with tackable surface and vision panels where appropriate







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Collections and Conservation

D.4.c. Student Workstations

Individual Space Analysis 04.85

1. SPACE PROGRAM

SPACE DESCRIPTION	Unisex Staff Restroom
FUNCTION	Restroom
NUMBER OF OCCUPANTS	1
AREA (NASF)	64

2. ARCHITECTURAL

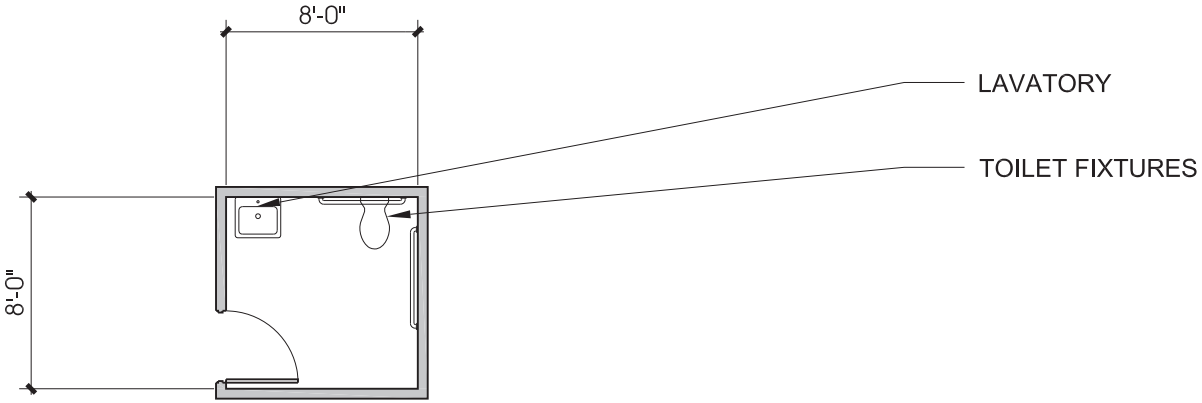
WINDOW	No
DOORS	Single 3'-0" wide doors
FLOOR	Tile floor and base
WALL	Tile, studs and wall board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	Sound attenuation insulation to mitigate sound transfer to adjacent spaces
GENERAL CHARACTER OF ROOM	Easy to clean

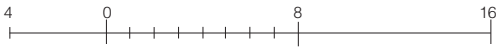
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: N/A Winter temperature: N/A Humidity set point: N/A Noise criterion: 45-50 Exhaust: 50 CFM/water closet or urinal Outside air (CFM per SF/CFM per person): Transfer from adjoining Notes: Provide supplemental heat if any wall is exterior
ELECTRICAL	120V power wall outlets, possible electric hand-dryer connection
PLUMBING	Wall mount single temperature faucet Floor mount flush tank 1.28 GPF Floor drain with trap primer
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	None
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Baby changing station
- Soap and paper towel dispensers (or electric hand dryers)
- Sanitary napkin disposal in Ladies toilet stalls
- Toilet seat cover dispenser
- Make-up mirror with small shelf separate from sinks to alleviate congestion and clogged drains





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Collections and Conservation

D.4.d. Unisex Staff Restroom

Individual Space Analysis 04.87

1. SPACE PROGRAM

SPACE DESCRIPTION	Classroom
FUNCTION	Classroom
NUMBER OF OCCUPANTS	30
AREA (NASF)	1,500

2. ARCHITECTURAL

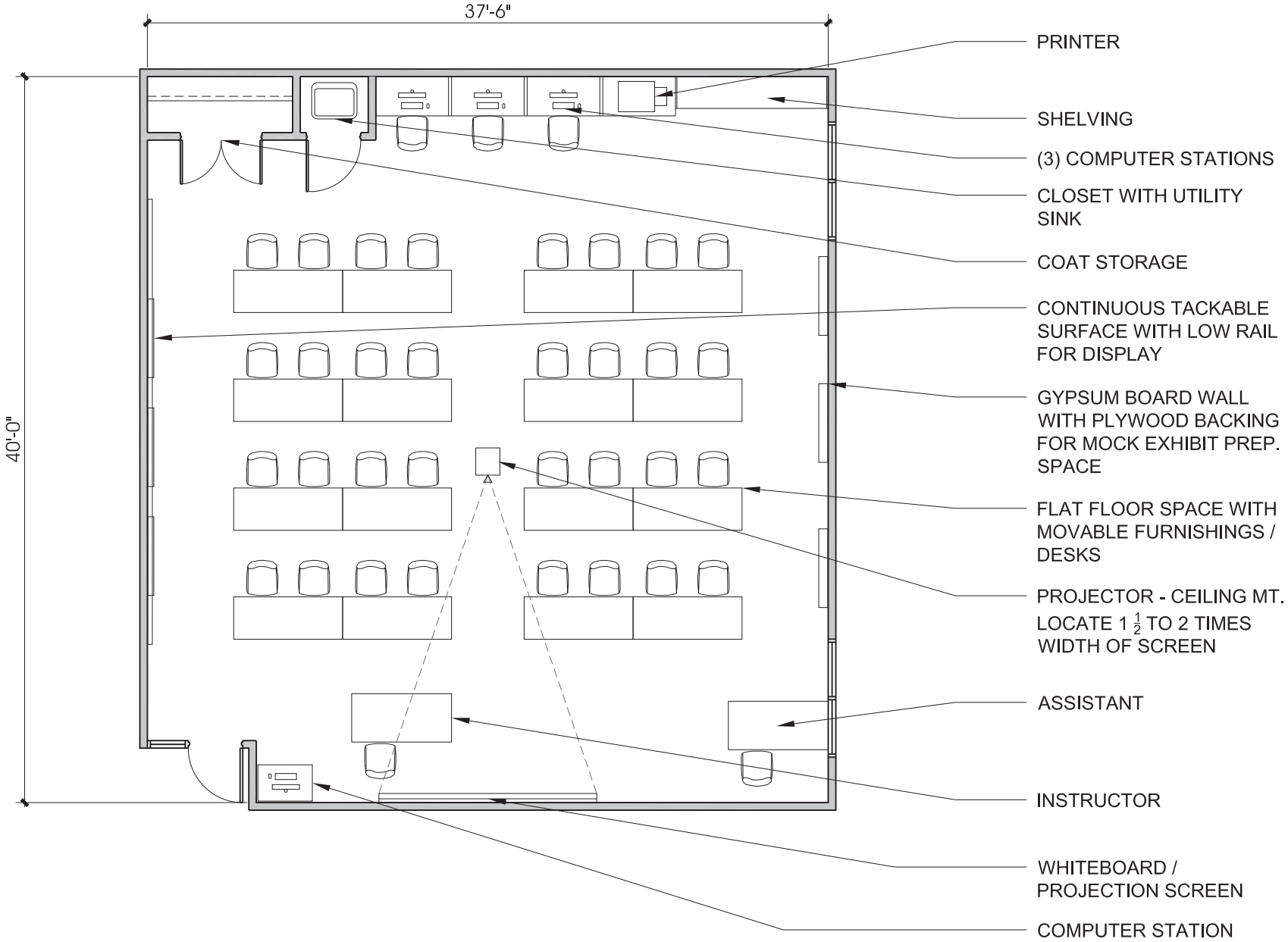
WINDOW	Yes, room-darkening capability, maximize daylight and views
DOORS	Single 3'-0" wide door
FLOOR	Marmoleum or other sustainable and easy-to-clean flooring
WALL	Painted gypsum board, tackboard
CEILING	Acoustical tile ceiling
CEILING HEIGHT	10'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment Projection screen & projector
GENERAL CHARACTER OF ROOM	Open flexible floor plan

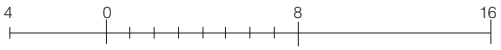
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 25-30 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/7.5
ELECTRICAL	120V power wall outlets
PLUMBING	Wall mount single temperature faucet Utility sink Floor drain with trap primer
LIGHTING	Energy efficient dimmable fluorescent light fixtures Two track-type fixtures with aimable heads
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes, with volume control
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Movable seats and tables
- Marker boards
- Clock
- Overhead projector
- Projector screen
- "Smart" console (movable)
- Teaching table with casters
- Tackable surface with low rail for displaying artwork


37'-6"
40'-0"
PRINTER
SHELVING
(3) COMPUTER STATIONS
CLOSET WITH UTILITY SINK
COAT STORAGE
CONTINUOUS TACKABLE SURFACE WITH LOW RAIL FOR DISPLAY
GYPSUM BOARD WALL WITH PLYWOOD BACKING FOR MOCK EXHIBIT PREP. SPACE
FLAT FLOOR SPACE WITH MOVABLE FURNISHINGS / DESKS
PROJECTOR - CEILING MT. LOCATE 1 1/2 TO 2 TIMES WIDTH OF SCREEN
ASSISTANT
INSTRUCTOR
WHITEBOARD / PROJECTION SCREEN
COMPUTER STATION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16

1. SPACE PROGRAM

SPACE DESCRIPTION	Education Director's Office
FUNCTION	Private Office
NUMBER OF OCCUPANTS	1
AREA (NASF)	140

2. ARCHITECTURAL

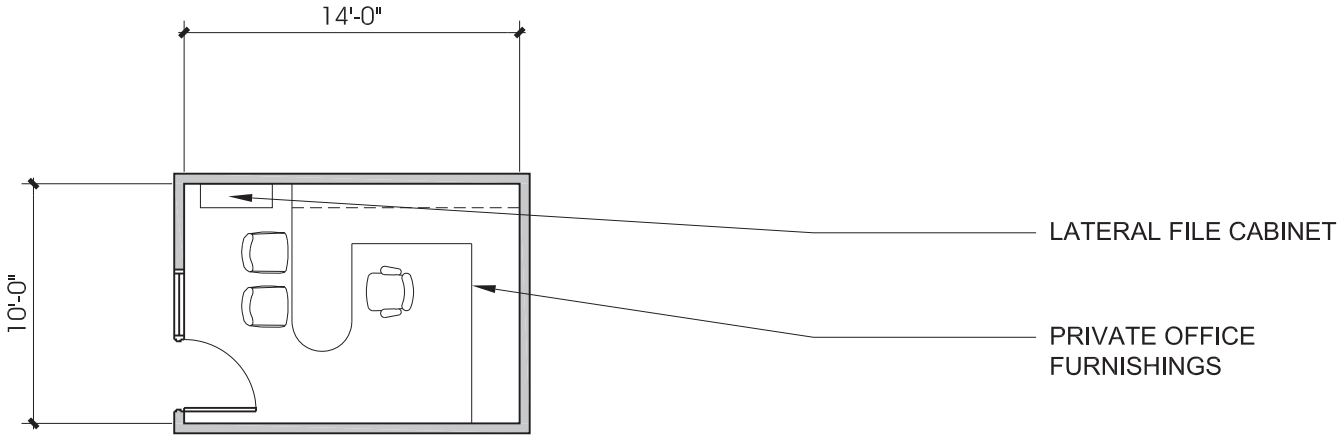
WINDOW	Yes, maximize daylight and views
DOORS	Single 3'-0" wide door
FLOOR	Carpet/wood base
WALL	Painted gypsum board, tackable surface
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Private office

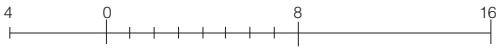
3. ENGINEERING

SECURITY	High-security lockset
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 30-35 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.6/5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes, with volume control
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Office furniture with lockable cash drawer for donations
- Table and chairs for private meetings
-





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Education

E.3.a. Education Director Office

Individual Space Analysis 04.91

1. SPACE PROGRAM

SPACE DESCRIPTION	Education Director's Assistant Workstation
FUNCTION	Workstation
NUMBER OF OCCUPANTS	1
AREA (NASF)	144

2. ARCHITECTURAL

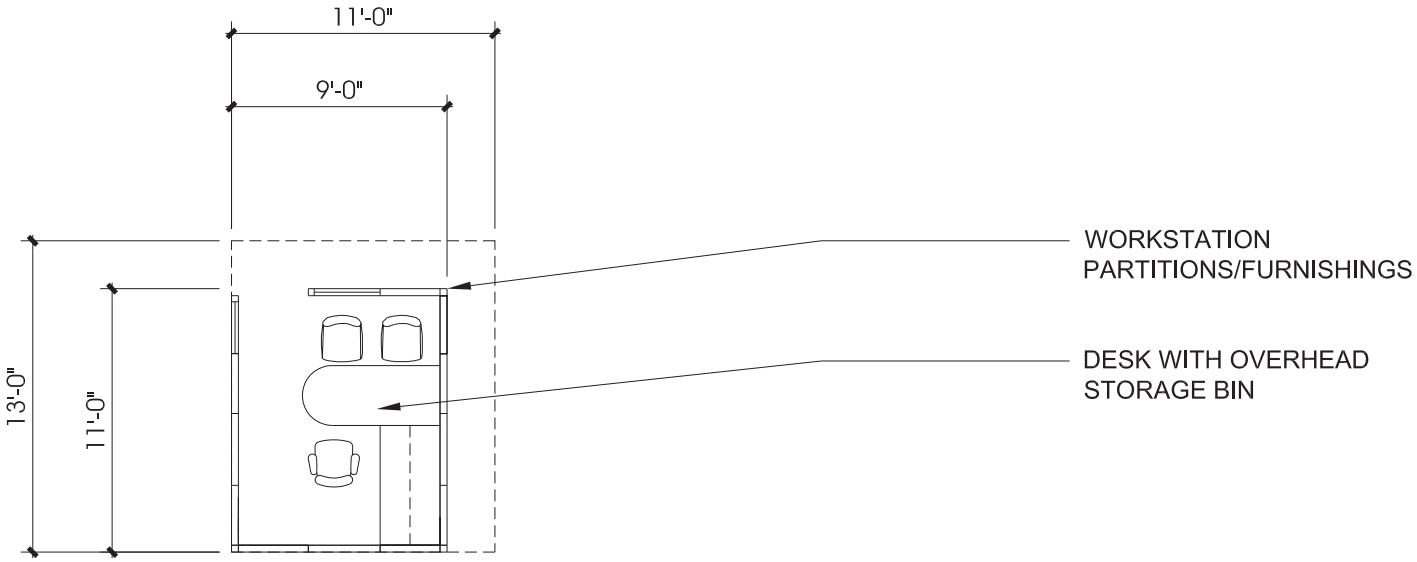
WINDOW	Yes, maximize daylight and views
DOORS	Minimum 3'-0" wide opening
FLOOR	Carpet/wood base at gypsum board walls
WALL	Painted gypsum board, tackable surface
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Workstation

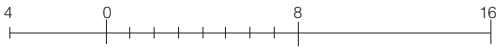
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: 72 occupied/78 unoccupied Winter temperature: 72 occupied/68 unoccupied Humidity set point: N/A Noise criterion: 35-40 Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.06/5 (demand controlled ventilation)
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets and wireless capability
INTERCOM SYSTEM	Yes, with volume control
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Office furniture system with tackable surface and vision panels where appropriate





Education

E.3.b. Education Director's Assistant Workstation

Individual Space Analysis 04.93

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1. SPACE PROGRAM

SPACE DESCRIPTION	Restrooms
FUNCTION	Restrooms
NUMBER OF OCCUPANTS	N/A
AREA (NASF)	280 each (provide 2)

2. ARCHITECTURAL

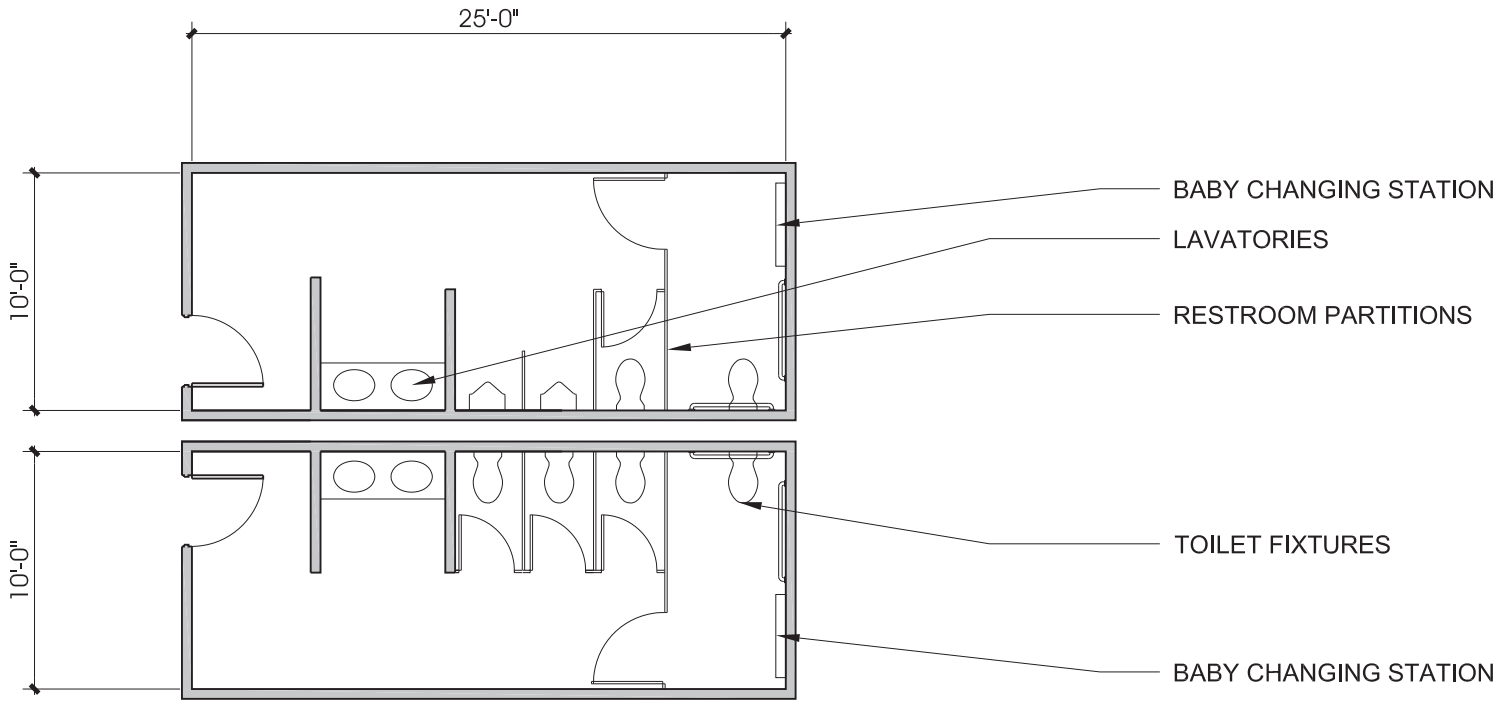
WINDOW	No
DOORS	Single 3'-0" wide doors
FLOOR	Tile floor and base
WALL	Tile, studs and wall board to structure above
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	Sound attenuation insulation to mitigate sound transfer to adjacent spaces
GENERAL CHARACTER OF ROOM	Easy to clean

3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: N/A Winter temperature: N/A Humidity set point: N/A Noise criterion: 45-50 Exhaust: 50 CFM/water closet or urinal Outside air (CFM per SF/CFM per person): Transfer from adjoining Notes: Provide supplemental heat if any wall is exterior
ELECTRICAL	120V power wall outlets, possible electric hand-dryer connection
PLUMBING	Counter mount lavatories with single temperature sensor format Wall hung urinals, 1/8 GPF Wall hung water closets, 1.28 GPF Floor drain with trap primer
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	None
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Baby changing station
- Soap and paper towel dispensers (or electric hand dryers)
- Sanitary napkin disposal in Ladies toilet stalls
- Toilet seat cover dispenser
- Make-up mirror with small shelf separate from sinks to alleviate congestion and clogged drains



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Education

E.4.a. Restrooms

Individual Space Analysis 04.95

1. SPACE PROGRAM

SPACE DESCRIPTION	Art Supplies Storage Room
FUNCTION	Storage
NUMBER OF OCCUPANTS	1
AREA (NASF)	100

2. ARCHITECTURAL

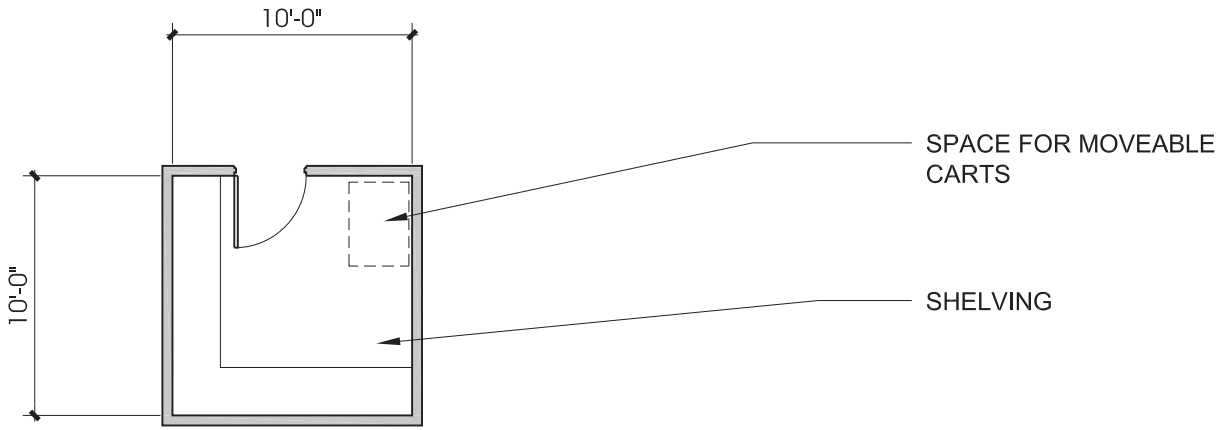
WINDOW	No
DOORS	Single 3'-0" wide door
FLOOR	Rubber tile/rubber base
WALL	Painted gypsum board
CEILING	Acoustical tile ceiling
CEILING HEIGHT	8'-0" minimum
ACOUSTICS/AUDIO VISUAL	No special treatment
GENERAL CHARACTER OF ROOM	Maximize storage

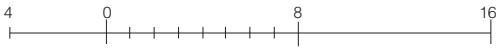
3. ENGINEERING

SECURITY	Standard
HVAC	Summer temperature: N/A Winter temperature: N/A Humidity set point: N/A Noise criterion: N/A Exhaust: N/A Outside air (CFM per SF/CFM per person): 0.12/-
ELECTRICAL	120V power wall outlets
PLUMBING	None
LIGHTING	Energy efficient fluorescent light fixtures
PHONE/DATA	Wall outlets
INTERCOM SYSTEM	Yes
SPECIAL REQUIREMENTS	None

4. EQUIPMENT, FURNITURE, & ACCESSORIES

- Heavy-duty storage shelving
- Moveable carts





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Education

E.5.b. Art Supplies Storage Room

Individual Space Analysis 04.97

Project Cost Summary

05

Building Cost Summary

05.1

BUILDING COST SUMMARY

The total construction budget for the SUMA project is $9,000,000 ("hard" costs only). The current construction cost estimate for the proposed SUMA building (25,068 GSF) and related site work is $8,998,009. This construction cost estimate includes LEED Gold certification requirements.

SUMA CONSTRUCTION COST MODEL LINE ITEMS

Structural	$1,305,990
Architectural	$2,309,174
Mechanical	$1,150,147
Electrical	$ 927,776
SUBTOTAL (Building Only)	$ 5,693,087
Project-specific Site Work	$1,592,750
SUBTOTAL	$ 7,285,837
Mark-ups (includes general conditions 6%, bonding 1%, overhead & profit 3.5%, design contingency 10%, inflation to November 2011 3%)	$ 1,712,172
TOTAL CONSTRUCTION COST (including mark-ups)	$8,998,009**

**LEED Gold certification requirements are included. Project "soft" costs are NOT included.

See Section 5.2 for a detailed cost summary (including a list of exclusions, items affecting opinion of probable costs, assumptions, escalation, and contingencies), as well as comparable project cost analysis.

Construction Cost Estimate

05.2

MASTER SUMMARY

SECTION	AREA	UNIT	COST/SF	COST
CONSTRUCTION COST:				
BUILDING	25,068	GSF	280.48	$7,030,962
SITE				$1,967,046
TOTAL (Construction)				$8,998,009

NOTES: Costs are for Construction only.
Costs are for a "LEED Gold" Facility.
Costs are Based on a Competitive Bid Basis.
Costs are Based on a Construction Start of November 2011.

BUILDING SUMMARY

SECTION		AREA	UNIT	COST/SF	COST
ARCHITECTURAL		25,068	GSF	92.12	$2,309,174
STRUCTURAL		25,068	GSF	52.10	$1,305,990
MECHANICAL		25,068	GSF	45.88	$1,150,147
ELECTRICAL		25,068	GSF	37.01	$927,776
SUB TOTAL		25,068	GSF	227.11	$5,693,087
GENERAL CONDITIONS	6.0%				$341,585
BONDING	1.0%				$56,931
OVERHEAD & PROFIT	3.5%				$199,258
SUB TOTAL		25,068	GSF	250.95	$6,290,861
DESIGN CONTINGENCY	10.0%				$569,309
INFLATION TO NOVEMBER 2011	3.0%				$170,793
TOTAL (Construction)		25,068	GSF	280.48	$7,030,962

NOTES: Costs are for Construction only.
Costs are for a "LEED Gold" Facility.
Costs are Based on a Competitive Bid Basis.
Costs are Based on a Construction Start of November 2011.

BUILDING DETAIL

SECTION	QUANTITY	UNIT	UNIT COST	COST
ARCHITECTURAL				
ROOF				
Metal Roofing System, Rigid Insulation & Flashings	6,980	SF	18.00	$125,640
Membrane Roofing System, Rigid Insulation & Flashings	13,960	SF	9.00	$125,640
			10.02	$251,280
EXTERIOR WALLS				
Foundation Waterproofing w/ Rigid Insulation	2,400	SF	5.50	$13,200
Stone Veneer, Metal Studs, Batt Insulation & Gypsum Bd	6,240	SF	40.00	$249,600
Metal Panels, Metal Studs, Batt Insulation & Gypsum Bd	1,560	SF	35.00	$54,600
			12.66	$317,400
INTERIOR WALLS				
Metal Studs, Sound Insulation & Gypsum Board	20,100	SF	8.50	$170,850
			6.82	$170,850
DOORS AND WINDOWS				
Aluminum Windows / Curtain Wall w/ Glass	6,300	SF	75.00	$472,500
Sun Shading Devices	1,750	SF	65.00	$113,750
Man Doors w/ Hardware	56	LEAF	1,400	$78,400
			26.51	$664,650

SECTION	QUANTITY	UNIT	UNIT COST	COST
ARCHITECTURAL - Continued				
FINISHES				
Floor Finishes	25,068	SF	9.00	$225,612
Wall Finishes	43,200	SF	4.00	$172,800
Ceiling Finishes	25,068	SF	8.00	$200,544
			23.89	$598,956
SPECIALTIES				
Base & Upper Cabinets	380	LF	285.00	$108,300
Building Specialties (Signage, Bath Access, Fire Ext, Etc.)	25,068	SF	3.50	$87,738
			7.82	$196,038
EQUIPMENT				
Fixed Equipment, Minimal	1	LS	50,000	$50,000
			1.99	$50,000
CONVEYING SYSTEM				
Elevator, 2 Stop	1	EA	60,000	$60,000
			2.39	$60,000

BUILDING DETAIL

SECTION	QUANTITY	UNIT	UNIT COST	COST
STRUCTURAL				
FOUNDATION				
Concrete Drilled Pier System, Reinf	25,068	SF	7.00	$175,476
Concrete Foundation Wall w/ Reinf	2,400	SF	22.00	$52,800
Excavation and Backfill, Foundation	5,300	CY	23.00	$121,900
			13.97	$350,176
FLOORS				
Concrete Slab on Grade	17,445	SF	5.00	$87,225
Steel Structure, Decking, Fireproofing & Concrete Slab on Deck	7,623	SF	37.00	$282,051
Steel Pan Stairs w/ Railings, Standard	1	EA	20,000	$20,000
Steel Pan Stairs w/ Railings, Ornamental	1	EA	60,000	$60,000
			17.92	$449,276
COLUMNS				
Steel Columns w/ Fireproofing	25,068	SF	3.50	$87,738
			3.50	$87,738
ROOF				
Steel Structure, Decking & Fireproofing	20,940	SF	20.00	$418,800
			16.71	$418,800

BUILDING DETAIL

SECTION	QUANTITY	UNIT	UNIT COST	COST
MECHANICAL				
FIRE PROTECTION				
Fire Sprinkler System	25,068	SF	3.50	$87,738
			3.50	$87,738
PLUMBING				
Plumbing Fixtures w/ Piping	52	EA	3,000	$156,000
Plumbing Equipment & Specialties	25,068	SF	1.50	$37,602
			7.72	$193,602
HVAC				
HVAC Ductwork & Insulation	23,815	LB	7.00	$166,705
HVAC Grilles, Registers & Diffusers	315	EA	120.00	$37,800
HVAC Equipment	25,068	SF	13.00	$325,884
HVAC Piping & Specialties	25,068	SF	5.00	$125,340
HVAC Humidity Control System (50%)	12,534	SF	4.00	$50,136
HVAC Control System	25,068	SF	4.50	$112,806
HVAC Test & Balance / Commissioning	25,068	SF	2.00	$50,136
			34.66	$868,807

BUILDING DETAIL

SECTION	QUANTITY	UNIT	UNIT COST	COST
ELECTRICAL				
ELECTRICAL				
Light Fixtures, Standard & Exhibit	510	EA	325.00	$165,750
Devices (Outlets & Switches)	610	EA	120.00	$73,200
Gear (Panels & Transformers)	25,068	SF	3.00	$75,204
Feeder & Branch Circuitry	25,068	SF	5.50	$137,874
Fire Alarm System	25,068	SF	1.75	$43,869
Phone / Data System	25,068	SF	2.75	$68,937
Security System	25,068	SF	4.00	$100,272
Photovoltaic System, Allowance	1	LS	200,000	$200,000

SECTION	QUANTITY	UNIT	UNIT COST	COST
ELECTRICAL				
ELECTRICAL				
Light Fixtures, Standard & Exhibit	510	EA	325.00	$165,750
Devices (Outlets & Switches)	610	EA	120.00	$73,200
Gear (Panels & Transformers)	25,068	SF	3.00	$75,204
Feeder & Branch Circuitry	25,068	SF	5.50	$137,874
Fire Alarm System	25,068	SF	1.75	$43,869
Phone / Data System	25,068	SF	2.75	$68,937
Security System	25,068	SF	4.00	$100,272
Photovoltaic System, Allowance	1	LS	200,000	$200,000

BUILDING DETAIL

SECTION		QUANTITY	UNIT	UNIT COST	COST
ELECTRICAL - Continued					
ELECTRICAL - Continued					
Electrical Specialties		25,068	SF	1.00	$25,068
Electrical Commissioning		25,068	SF	1.50	$37,602
Audio / Visual System					In Soft Costs
				37.01	$927,776
SUB TOTAL		25,068	GSF	227.11	$5,693,087
GENERAL CONDITIONS	6.0%				$341,585
BONDING	1.0%				$56,931
OVERHEAD & PROFIT	3.5%				$199,258
SUB TOTAL		25,068	GSF	250.95	$6,290,861
DESIGN CONTINGENCY	10.0%				$569,309
INFLATION TO NOVEMBER 2011	3.0%				$170,793
TOTAL (Construction)		25,068	GSF	280.48	$7,030,962

NOTES: Costs are for Construction only.
Costs are for a "LEED Gold" Facility.
Costs are Based on a Competitive Bid Basis.
Costs are Based on a Construction Start of November 2011.

SITE SUMMARY

SECTION		AREA	UNIT	COST/SF	COST
SITE					$1,592,750
SUB TOTAL					$1,592,750
GENERAL CONDITIONS	6.0%				$95,565
BONDING	1.0%				$15,928
OVERHEAD & PROFIT	3.5%				$55,746
SUB TOTAL					$1,759,989
DESIGN CONTINGENCY	10.0%				$159,275
INFLATION TO NOVEMBER 2011	3.0%				$47,783
TOTAL (Construction)					$1,967,046

NOTES: Costs are for Construction only.
Costs are for a "LEED Gold" Facility.
Costs are Based on a Competitive Bid Basis.
Costs are Based on a Construction Start of November 2011.

SITE DETAIL

SECTION	QUANTITY	UNIT	UNIT COST	COST
SITE				
ON-SITE				
Demo Paving, Clear & Grade	85,000	SF	1.00	$85,000
Landscaping & Irrigation	21,000	SF	4.00	$84,000
Asphalt Parking & Truck Access	20,000	SF	4.50	$90,000
Plaza & Sculpture Garden	21,000	SF	10.00	$210,000
Precast Utility Tunnel (Including Earthwork & WP) - 8x8	650	LF	775.00	$503,750
Steam Line	650	LF	200.00	$130,000
Condensate Line	650	LF	80.00	$52,000
Fire Line	100	LF	100.00	$10,000
Culinary Water Line	100	LF	50.00	$5,000
Sanitary Sewer Line	100	LF	75.00	$7,500
Storm Water Sewer line	250	LF	90.00	$22,500
Power Ductbank	650	LF	185.00	$120,250
Telecom Ductbank	650	LF	135.00	$87,750
5-Way Switch	1	EA	50,000	$50,000
3-Way Switch, Relocate Existing	1	EA	15,000	$15,000

SITE DETAIL

SECTION		QUANTITY	UNIT	UNIT COST	COST
SITE - Continued					
ON-SITE - Continued					
Site Lighting		1	LS	35,000	$35,000
City Impact Fees		1	LS	85,000	$85,000
					$1,592,750
SUB TOTAL					$1,592,750
GENERAL CONDITIONS	6.0%				$95,565
BONDING	1.0%				$15,928
OVERHEAD & PROFIT	3.5%				$55,746
SUB TOTAL					$1,759,989
DESIGN CONTINGENCY	10.0%				$159,275
INFLATION TO NOVEMBER 2011	3.0%				$47,783
TOTAL (Construction)					$1,967,046

NOTES: Costs are for Construction only.
Costs are for a "LEED Gold" Facility.
Costs are Based on a Competitive Bid Basis.
Costs are Based on a Construction Start of November 2011.

A/V Cost Summary

05.3

A/V COST SUMMARY

Grand Lobby and Reception Areas	$11,600
Exterior Pre-Function	$6,700
Galleries	$114,760
Classrooms	$38,000
A/V TOTAL	$171,060

Cost Comparables

05.4

COST COMPARABLES

University of Michigan Museum of Art

$411 per square foot

$22 million

53,452 square feet

Completed 2009

University of Michigan, Ann Arbor, Michigan

Allied Works Architecture

Contemporary expansion to a Beaux-Arts museum. Mostly gallery space with some offices and an auditorium. Not regional.

COST COMPARABLES

Lightcatcher at the Whatcom Museum

$304 per square foot

$12.8 million

42,000 square feet

Completed 2009

Bellingham, WA 2009

Olson Kundig Architects

Expansion to an existing art museum. Gallery and Performing art space. Public, but not on a college campus. Designed to be LEED silver, but not certified.

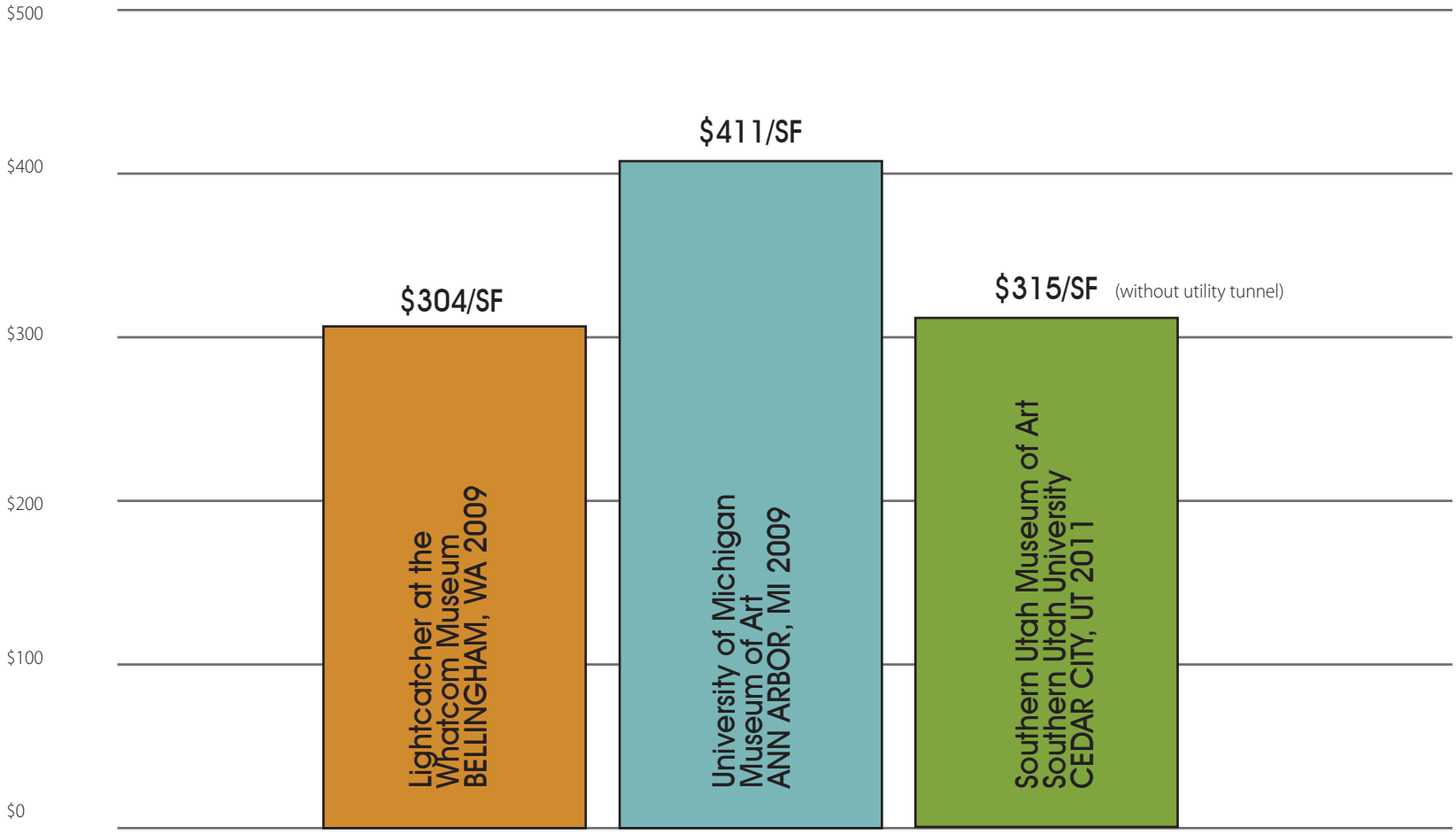
Cost Comparison Graph

05.5

COST COMPARISON GRAPH

Building and site construction

Cost/SF



APPENDICES

A: Glossary
B: Adjacency Studies
C: Alternate Stacking Options
D: Alternate Site Options
E: American Association of Museums Accreditation Documents
F: Geotechnical Investigation Results

Appendices

06

Glossary

A

GLOSSARY OF EXHIBIT TERMINOLOGY

Vision	Is what will be different if we are successful at our task
Goals	The visitor centered objectives that we will strive to achieve
Mandates	The objectives that leadership requires us to achieve
Guidelines	The metrics for creating a successful exhibition
Statement of Direction	The document developed by leadership to guide the museum development.

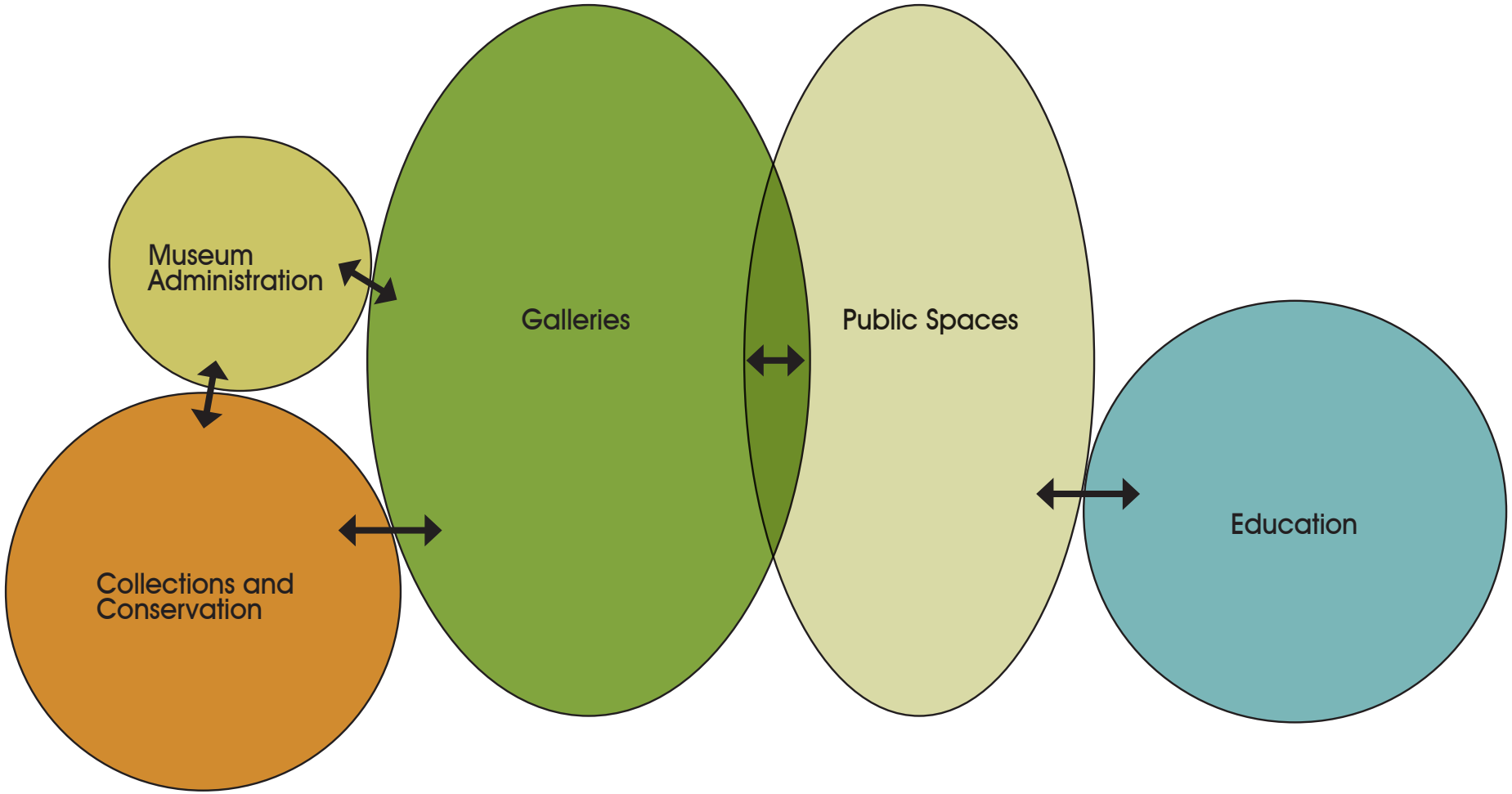
Icon	Emblematic symbolic structure that represent the characteristics of our region
Concept	The major components of the experience (design focused)
Big Idea	The single most important idea we want to convey
Themes	Ideas that carry through the core exhibit, giving visitors a cohesive experience
Threads/ Leitmotifs:	Lesser themes that reoccur occasionally
Core Exhibition	The long-term exhibition that forms the core of the exhibit experience
Changing Exhibits	Flexible spaces that allow for new exhibitions
Target audience	Audience groups that will have specific expectations of the museum.

The following adjacency studies were reviewed and discussed in depth during the programming workshops. They are included here for reference of options explored. The preferred adjacency study in Section 4 should be referred to during design.

Adjacency Studies

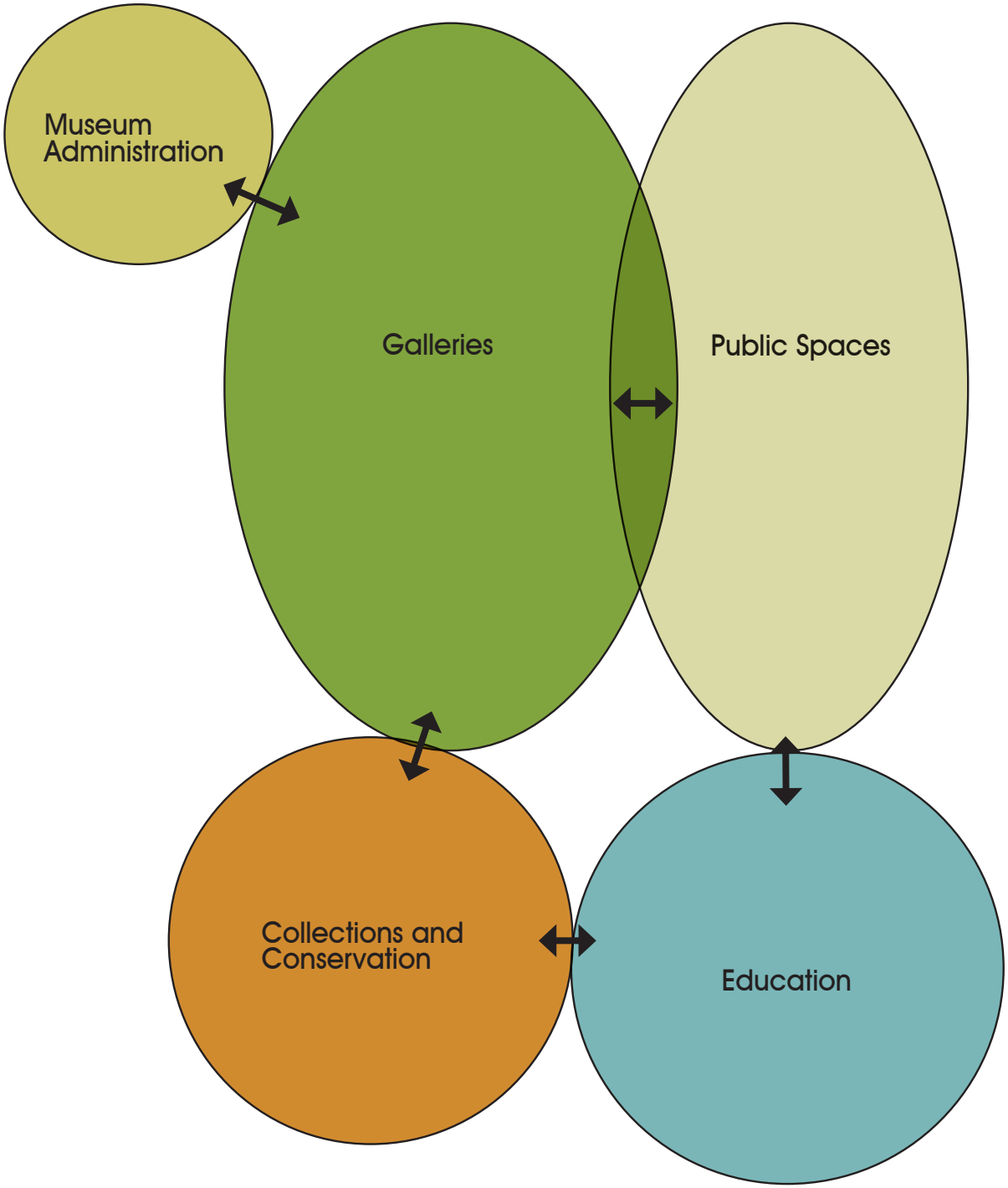
B

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education



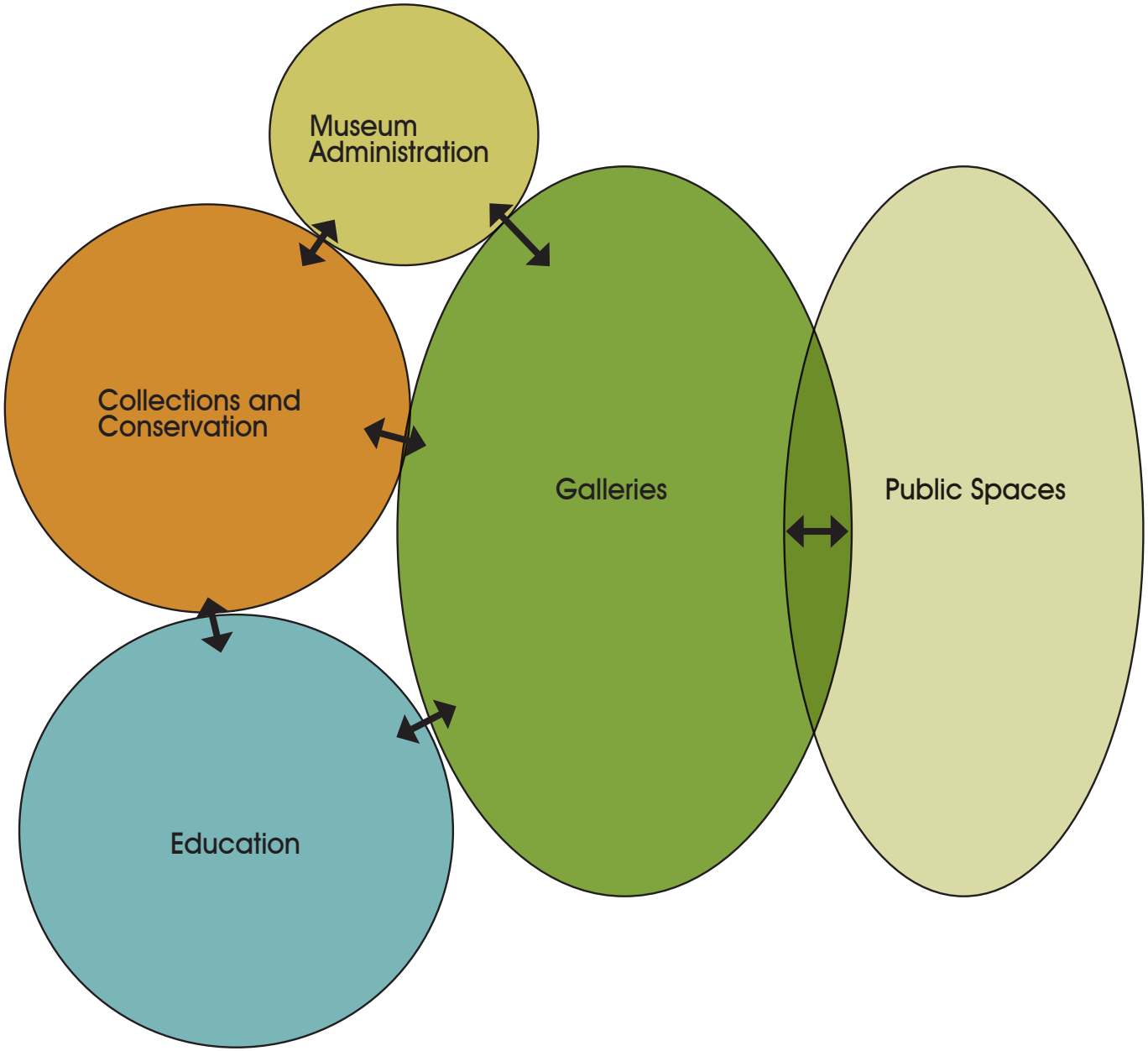
Adjacency Study A

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education



Adjacency Study B

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education



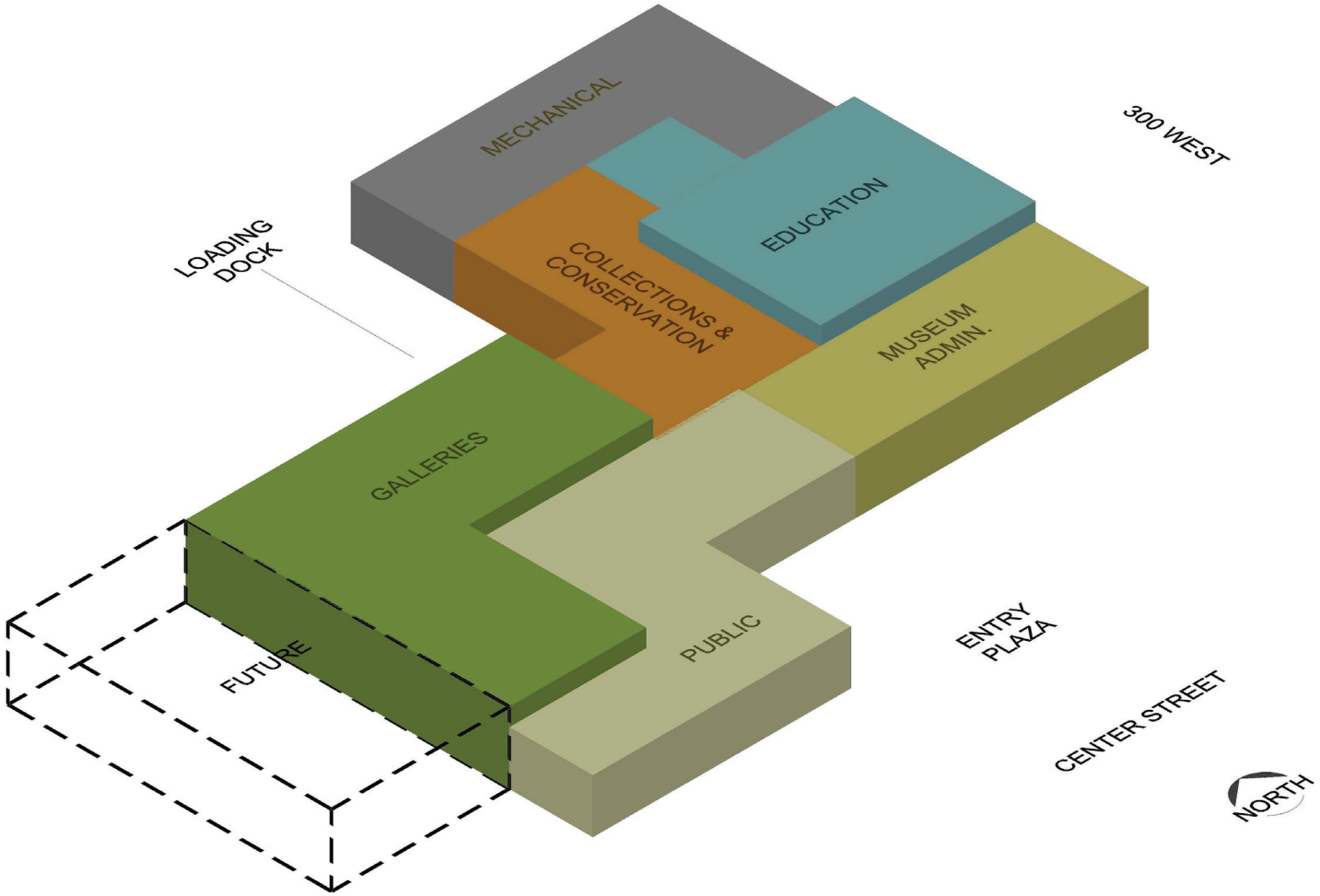
Adjacency StudyC

The following stacking options were reviewed and discussed in depth during the programming workshops. These diagrams explore a variety of one, two and three-level schemes with numerous configurations of spatial adjacencies leading to a wide range of possible building form. They are included here for reference of options explored. The preferred stacking diagram in Section 4 should be referred to during design.

Alternate Stacking Options

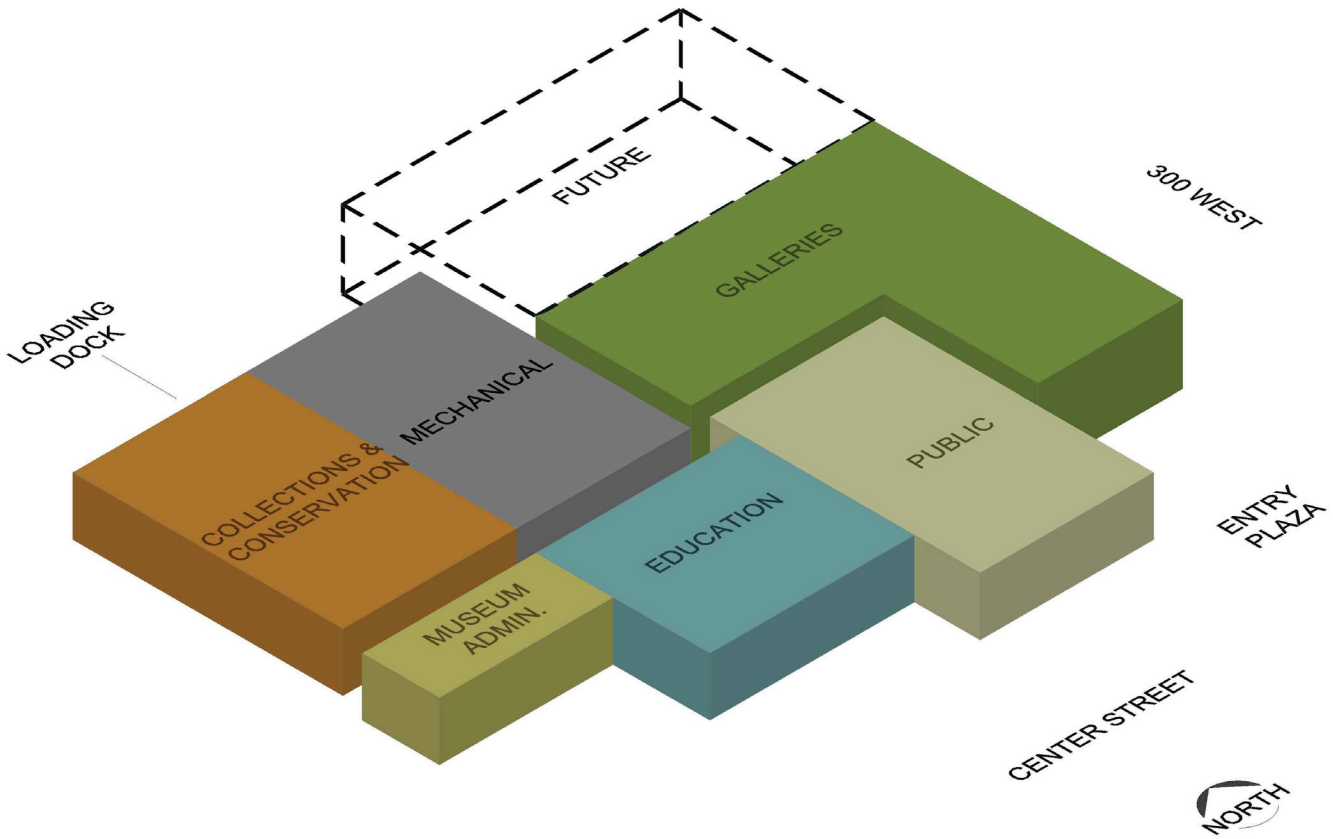
C

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



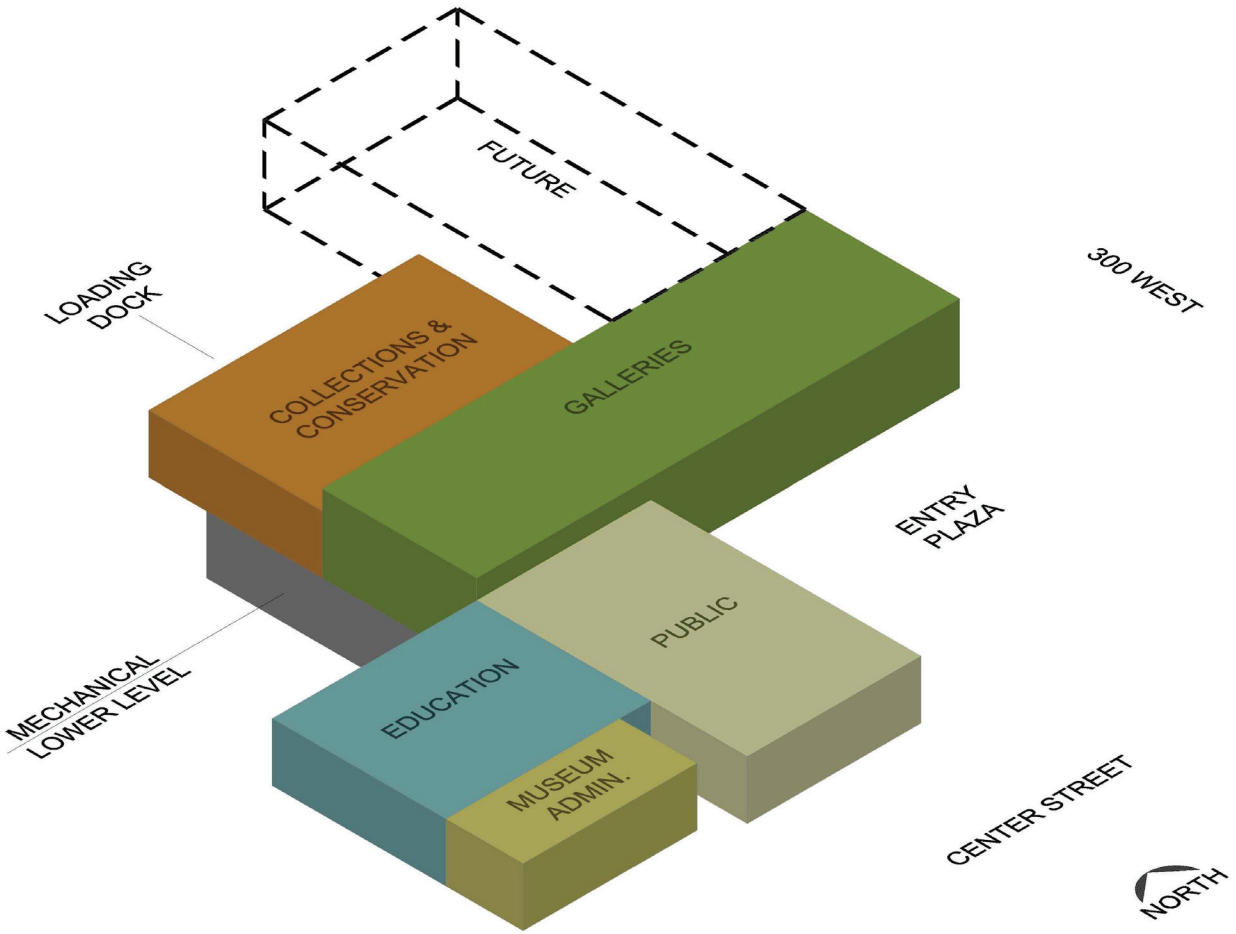
Stacking Option A

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



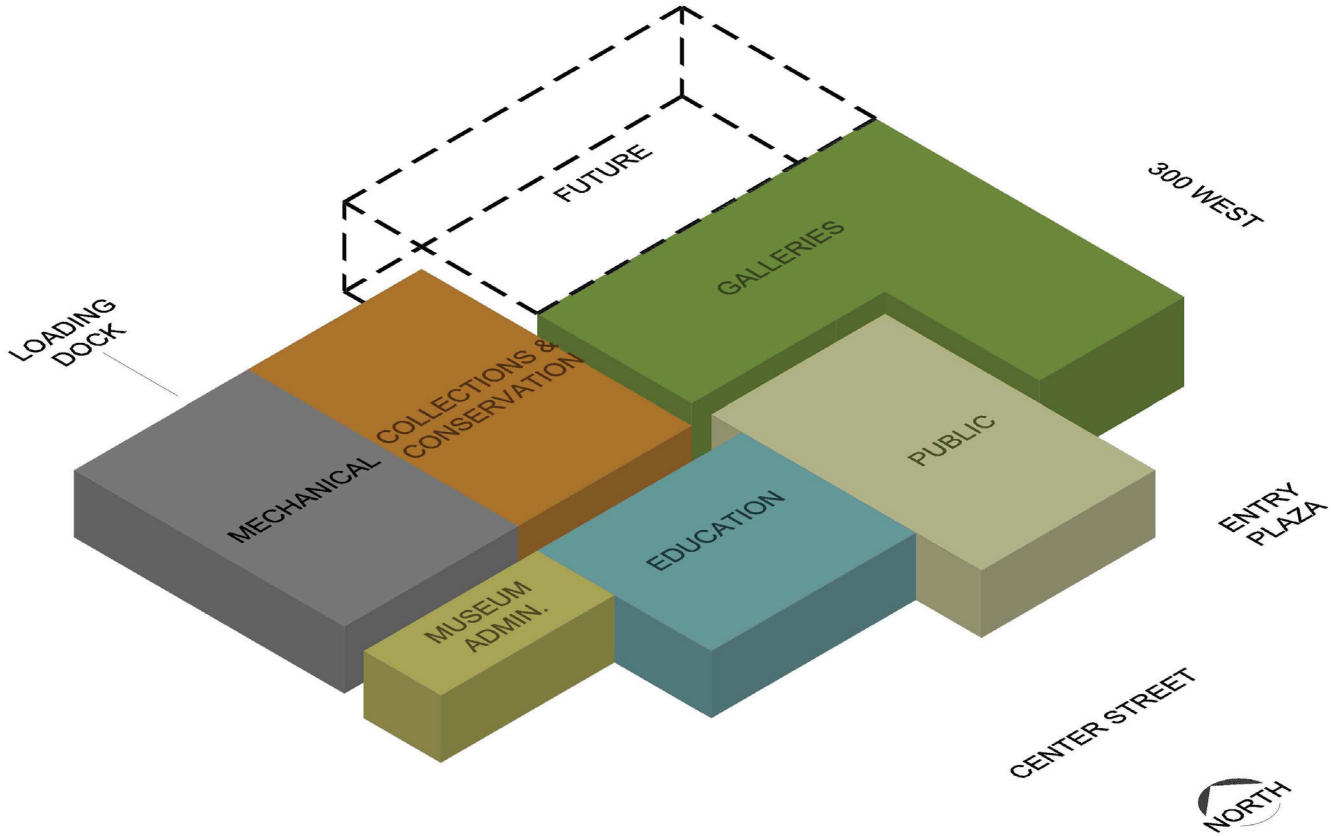
Stacking Option B

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



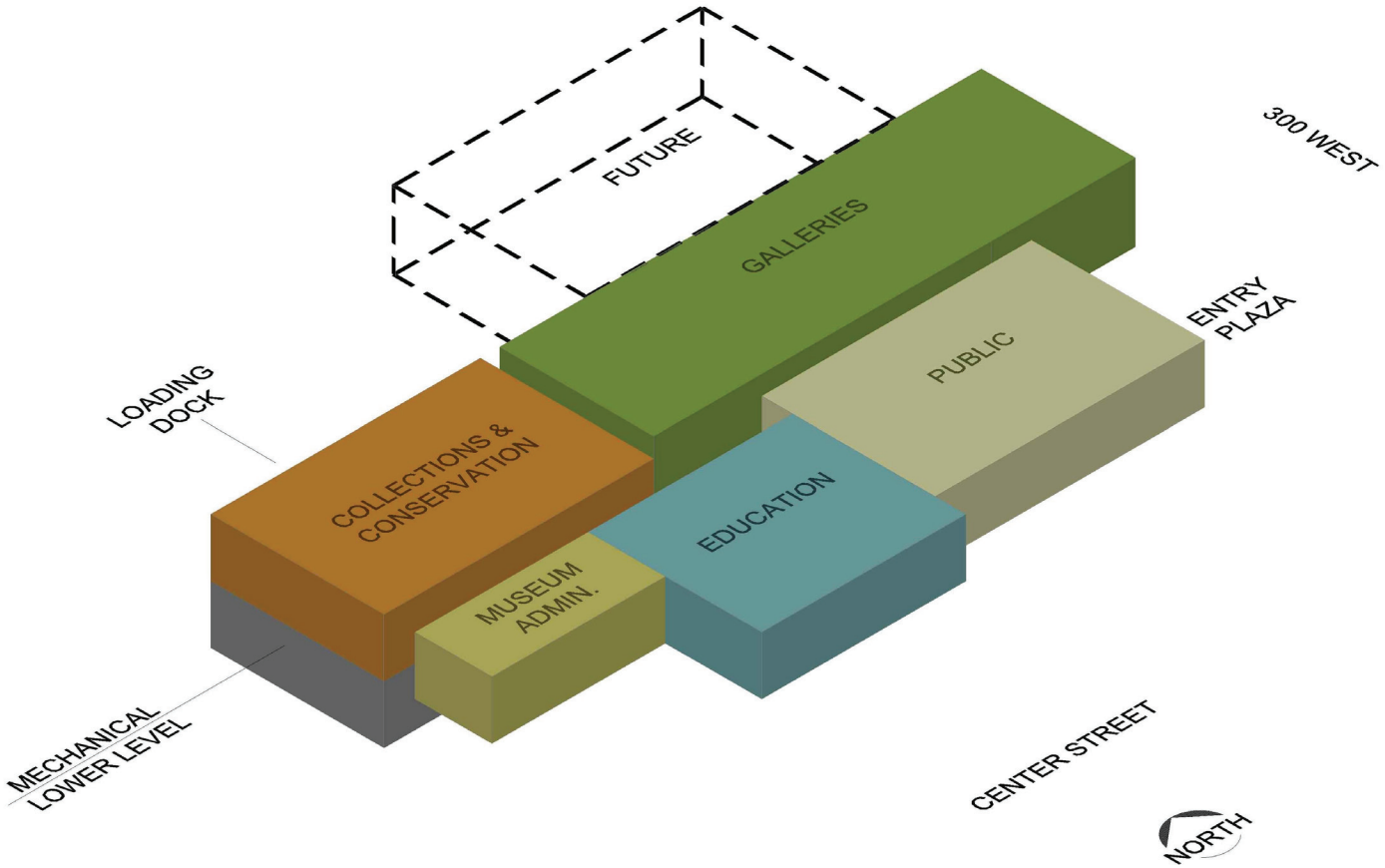
Stacking Option C

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



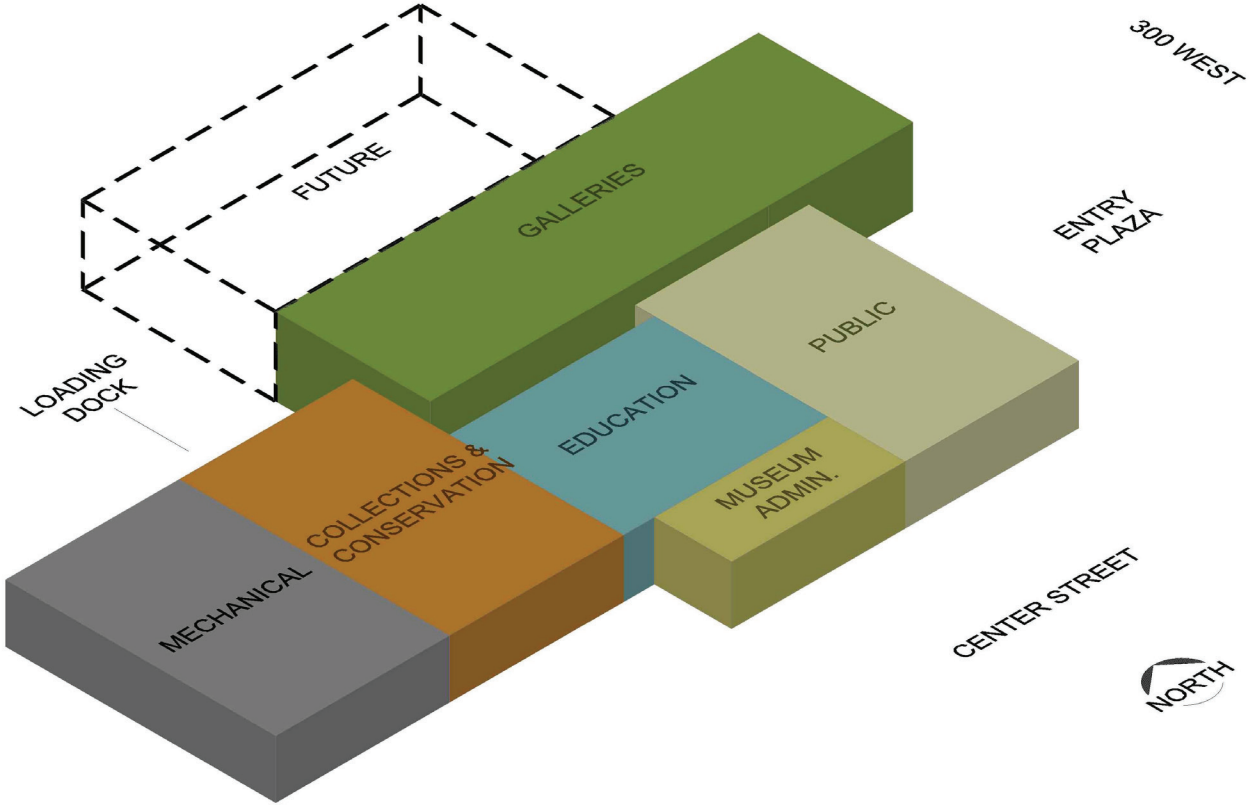
Stacking Option D

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



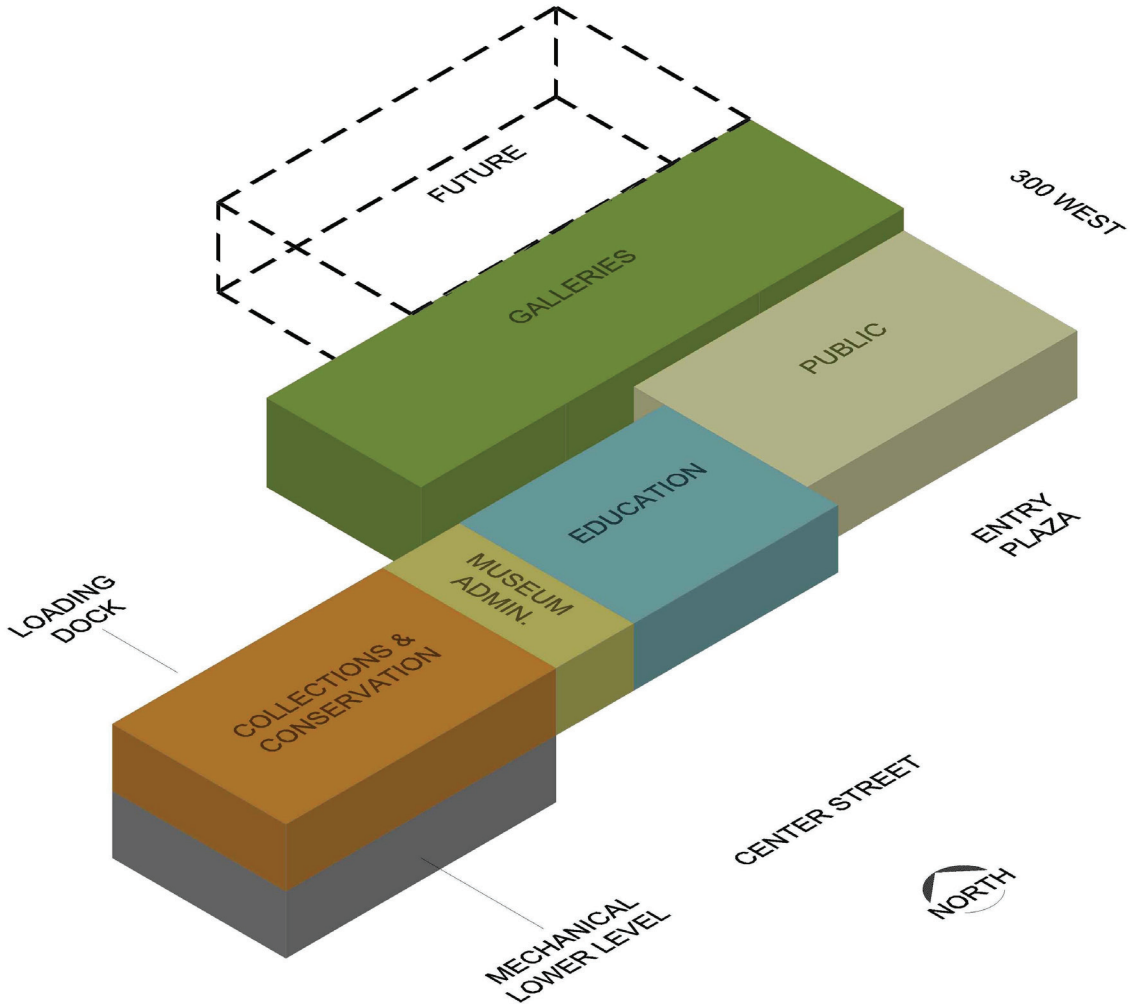
Stacking Option E

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



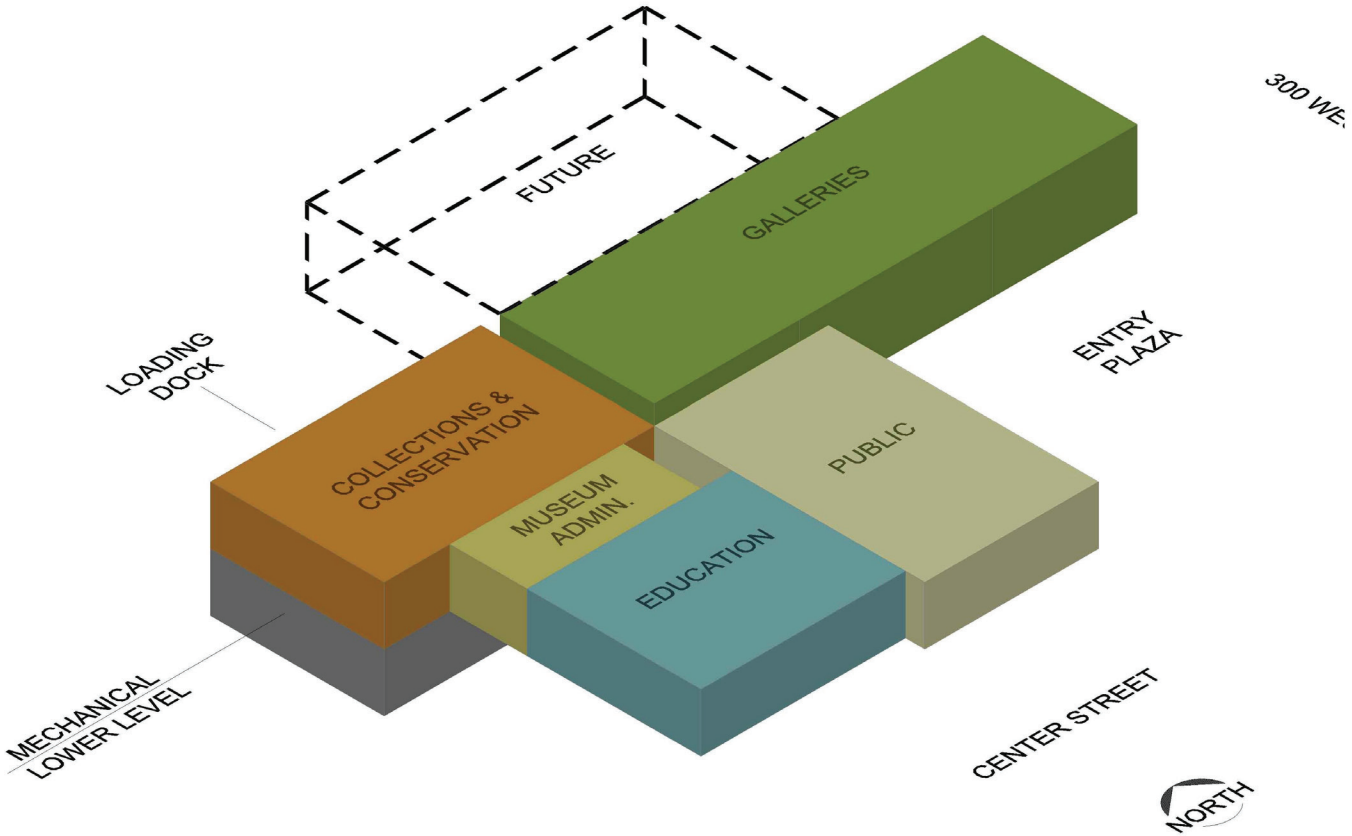
Stacking Option F

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



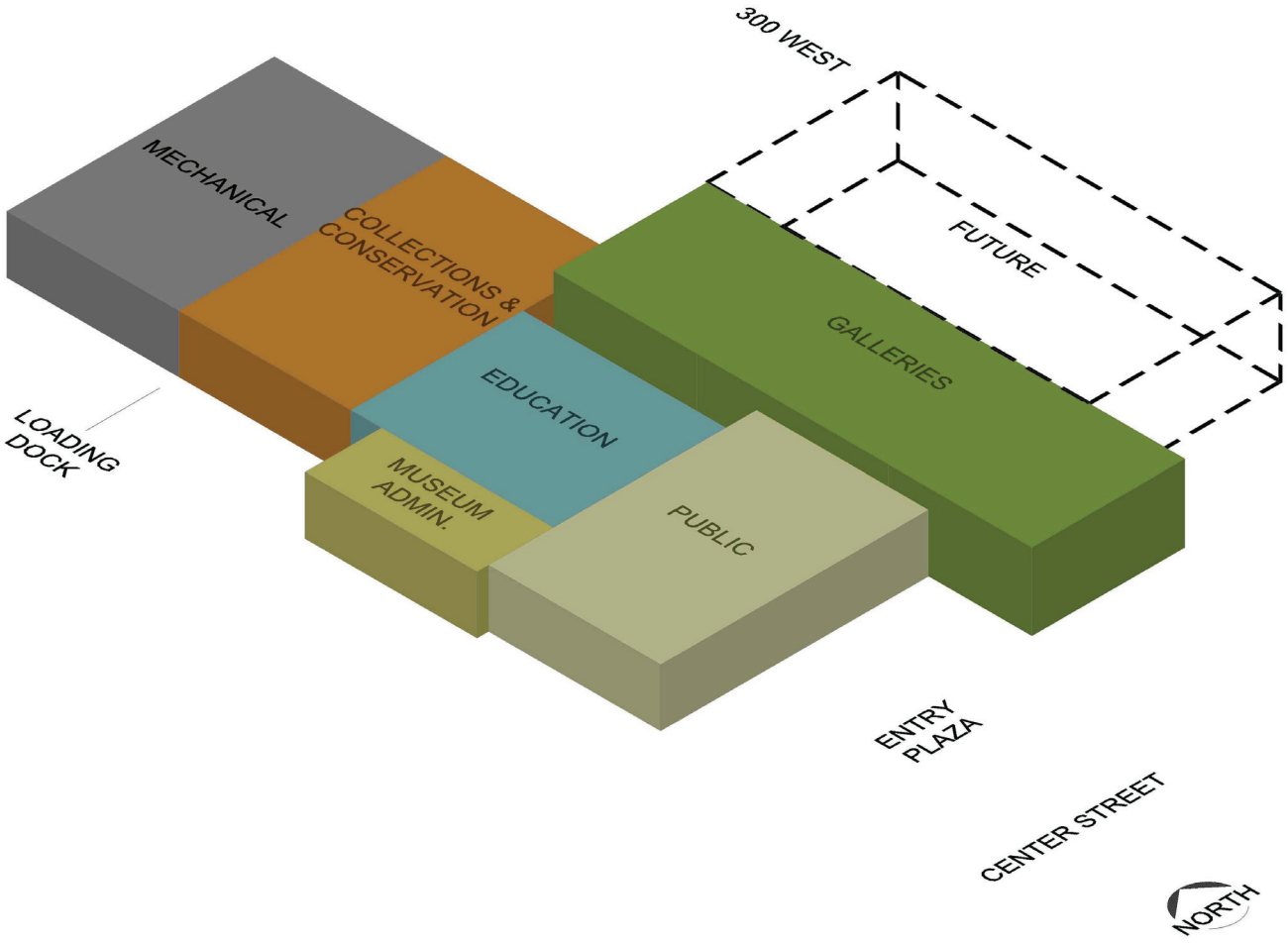
Stacking Option G

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



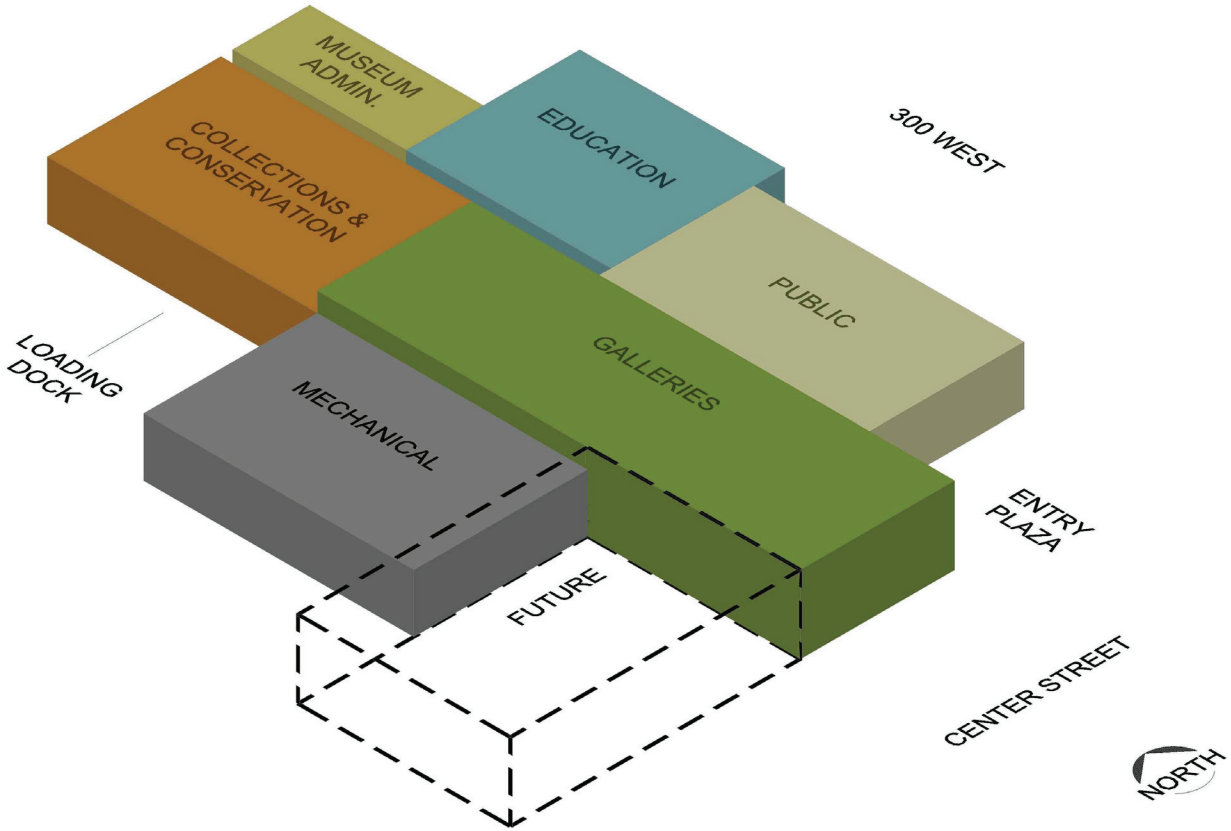
Stacking Option H

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



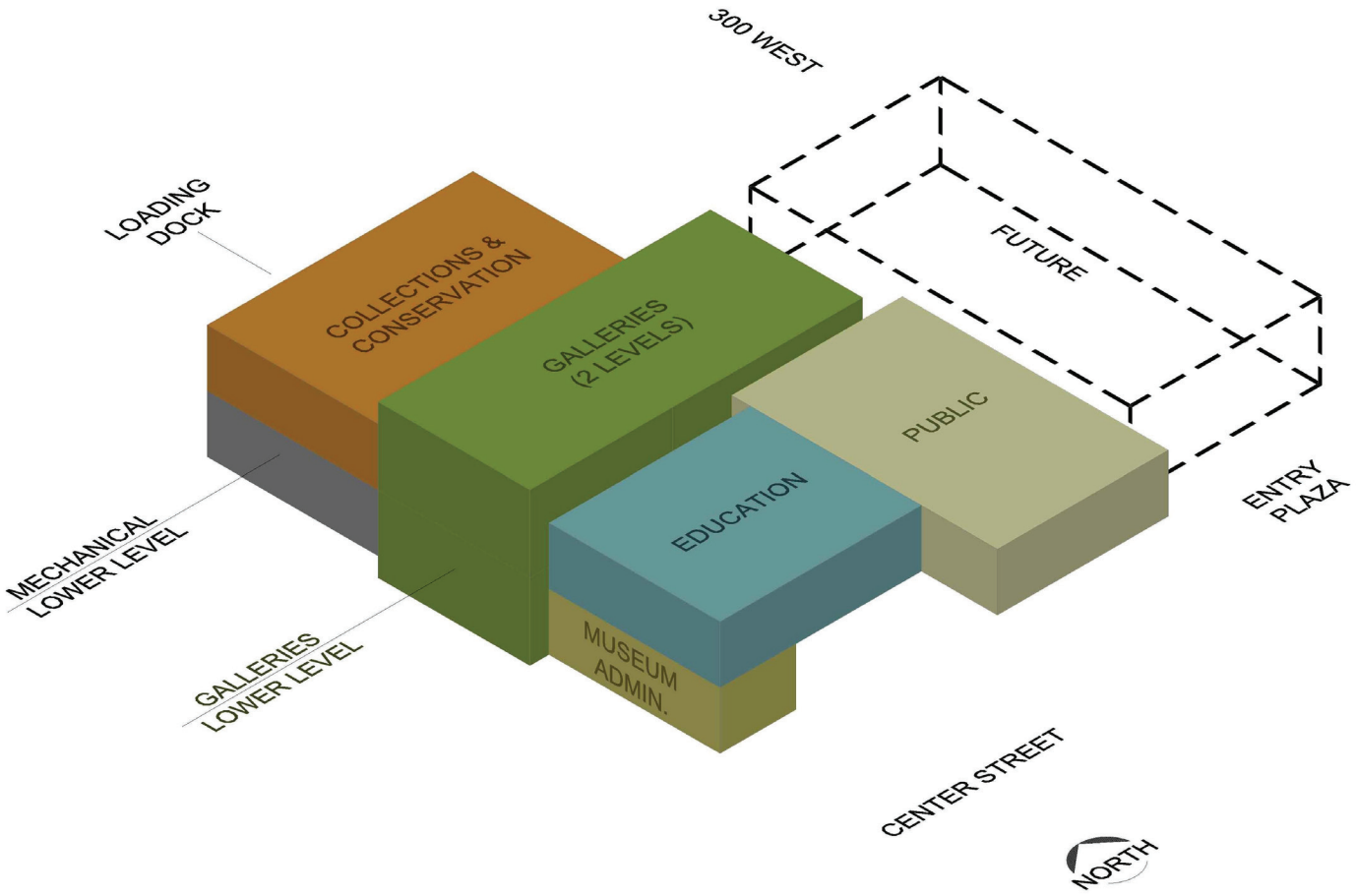
Stacking Option I

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



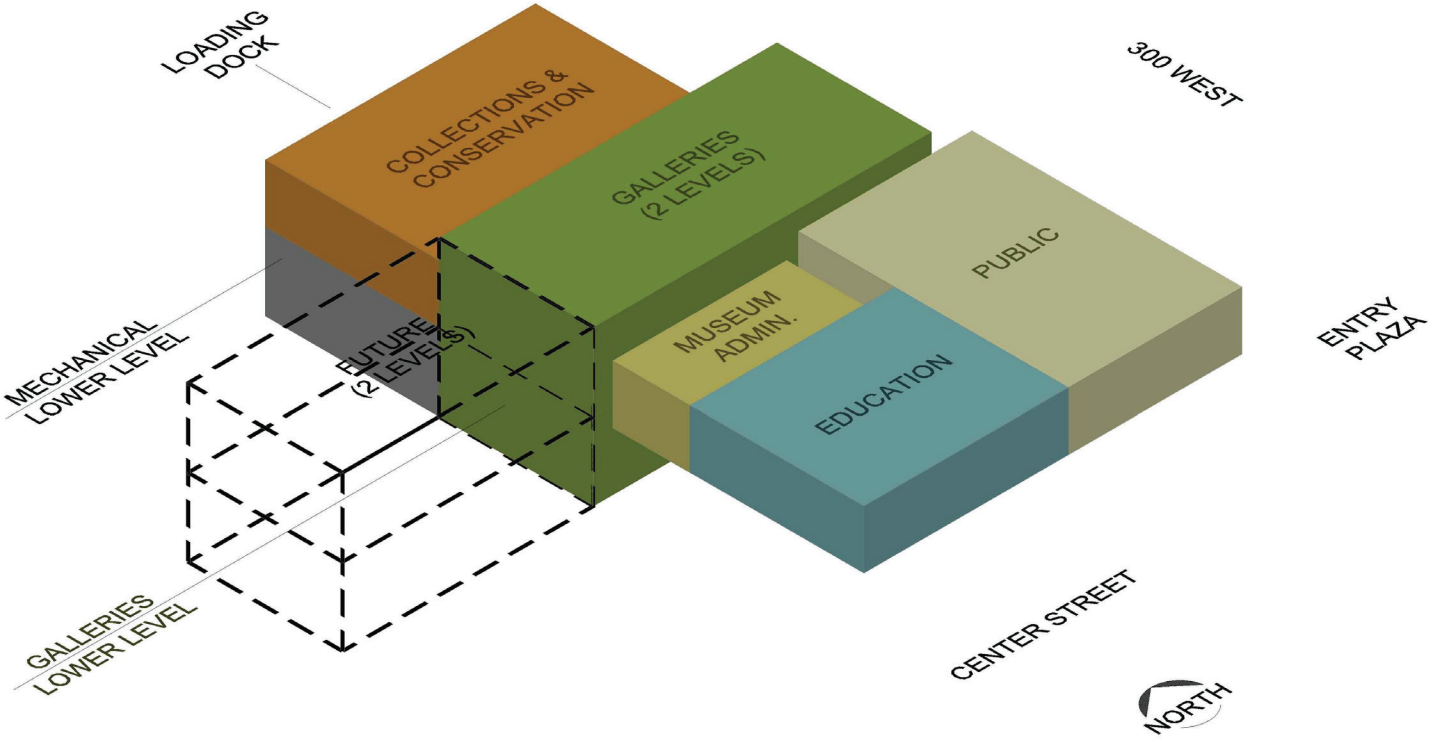
Stacking Option J

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



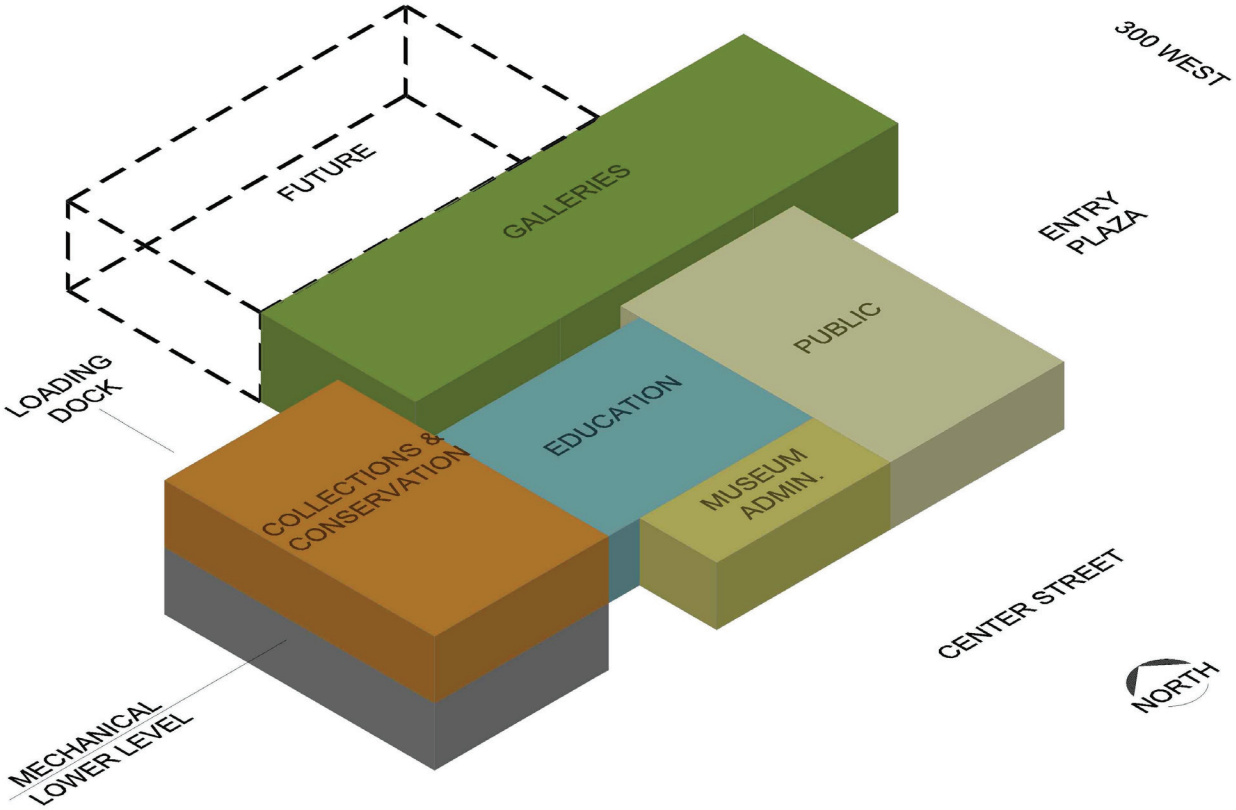
Stacking Option K

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



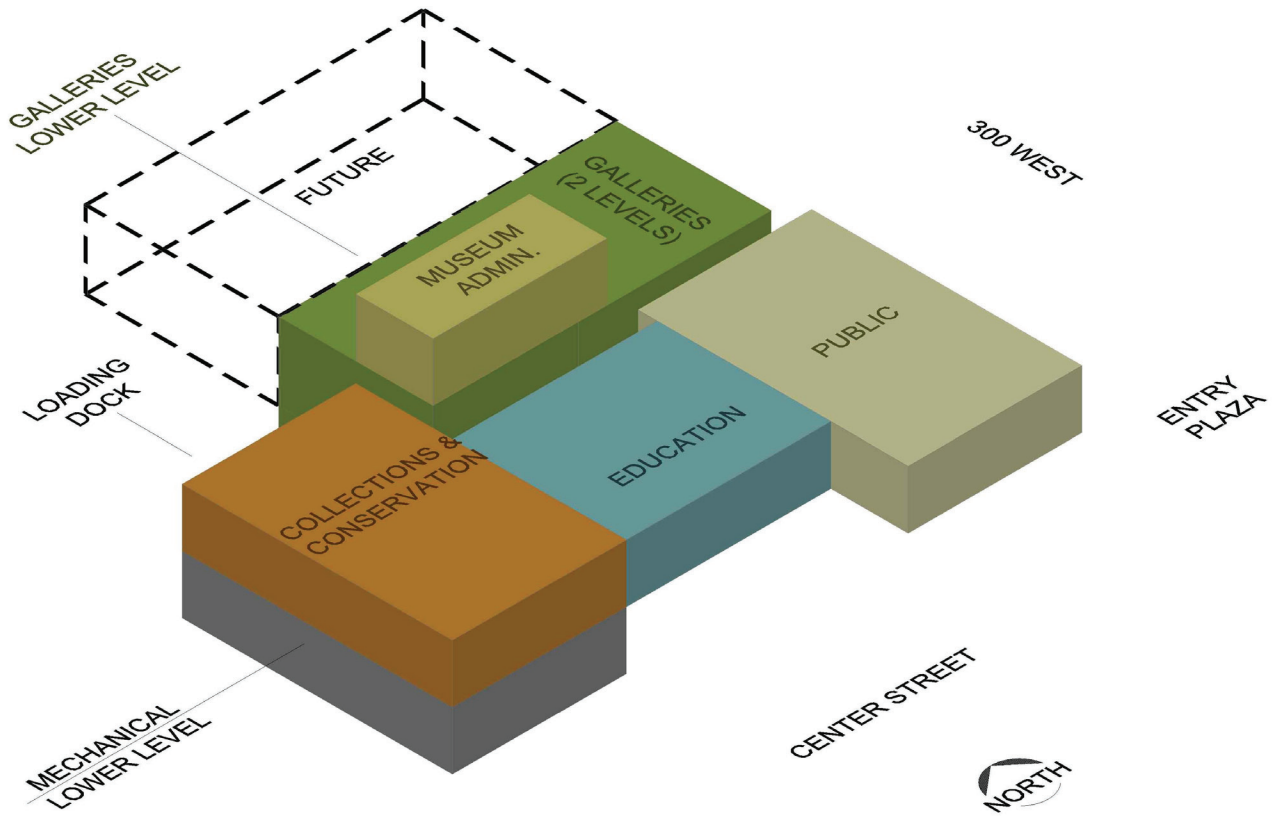
Stacking Option L

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



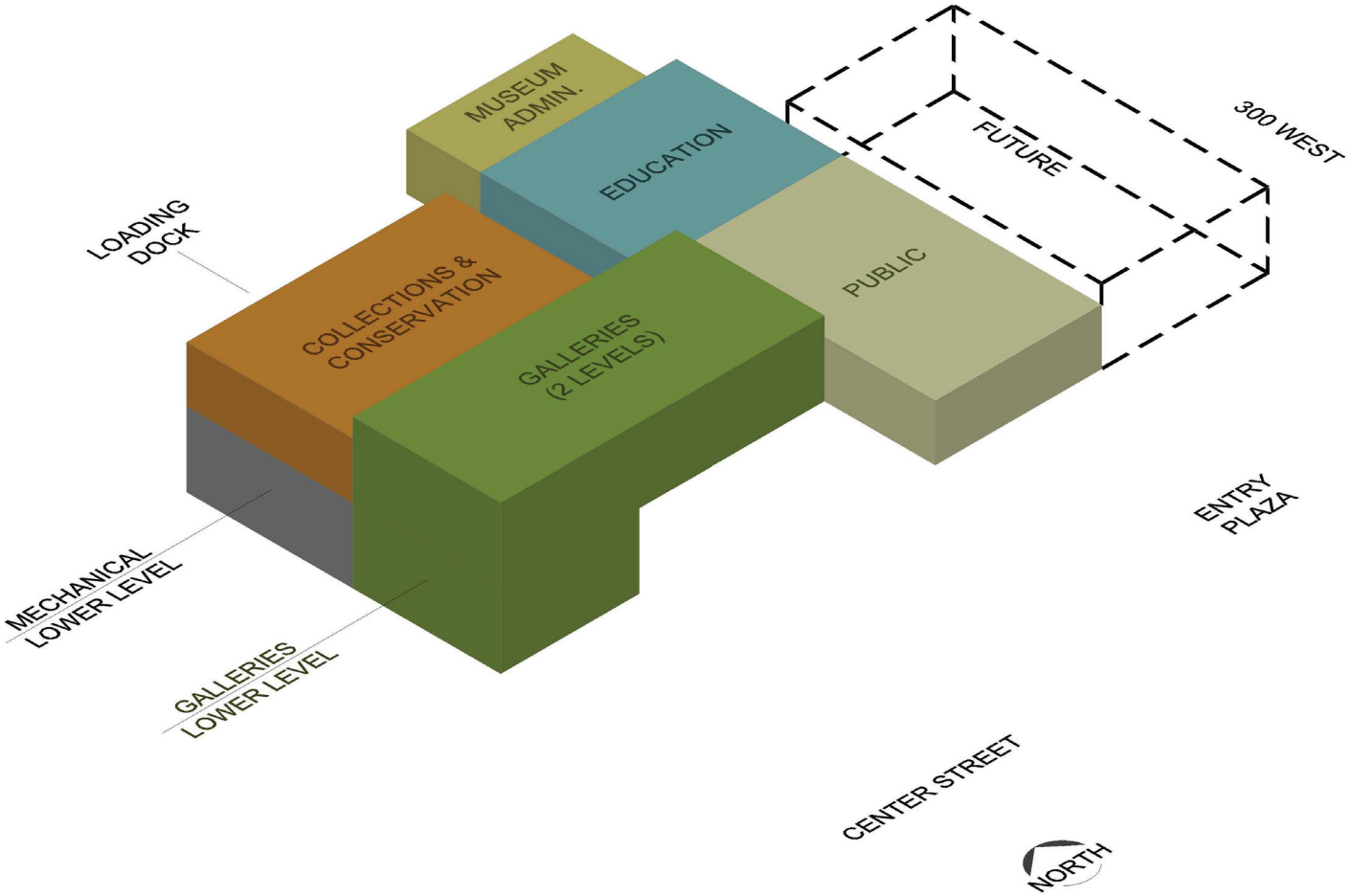
Stacking Option M

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical



Stacking Option N

- Galleries
- Public Spaces
- Museum Administration
- Collections and Conservation
- Education
- Mechanical

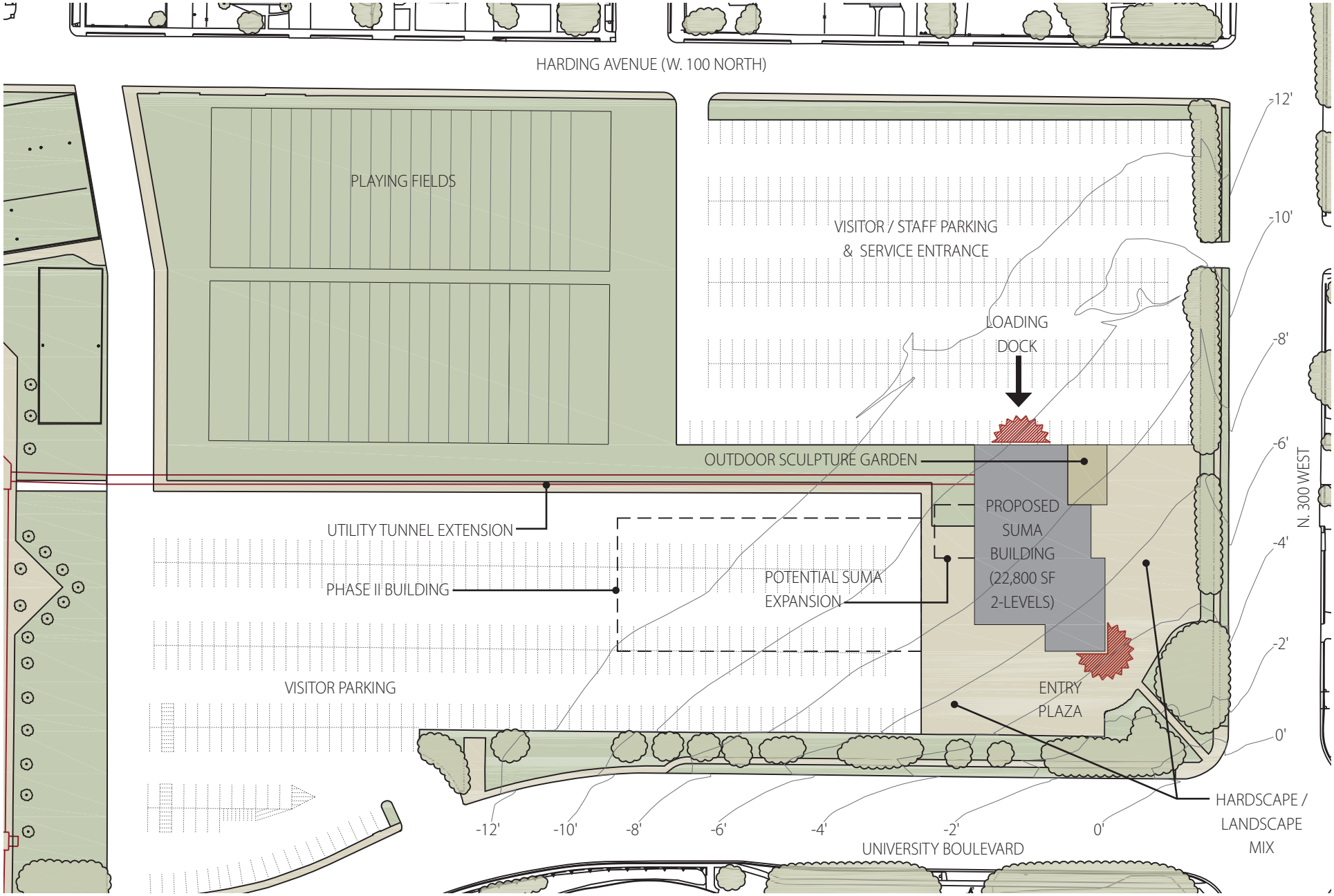


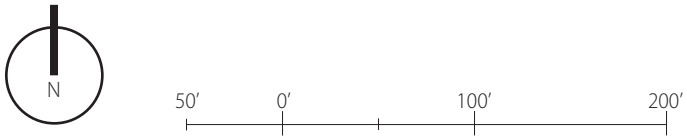
Stacking Option O

The following alternate site options were reviewed and discussed in depth during the programming workshops. One and two-level building schemes were explored with the major differences including various locations for the main entry, loading dock, and potential SUMA expansion. It was determined that the sculpture garden should be informal, unenclosed and incorporated into the entry plaza to allow the public to enjoy this amenity year-round and to help orient visitors to the building entrance. The alternate site options are included here for reference of options explored. The selected site option in Section 2 should be referred to during design.

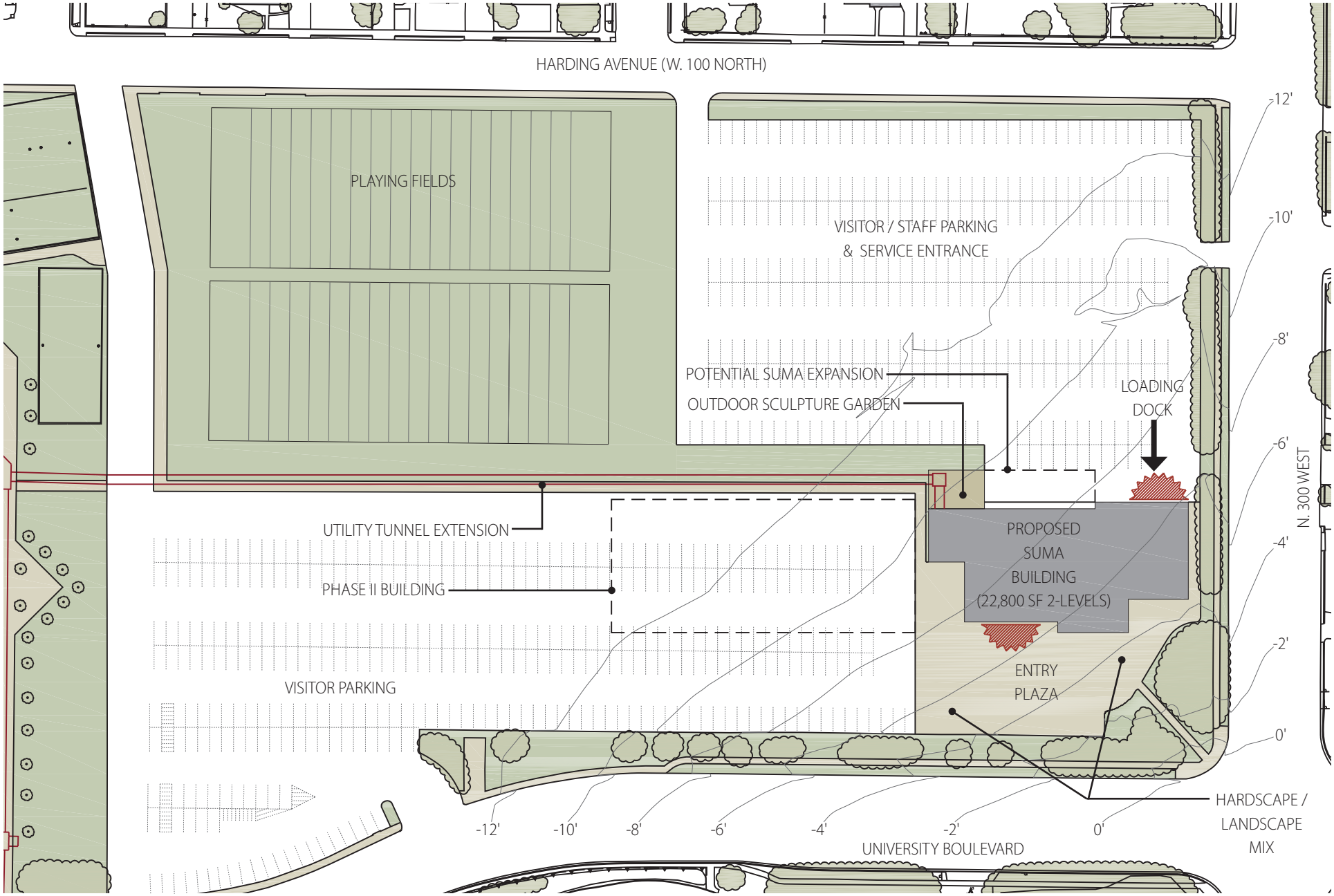
Alternate Site Options

D





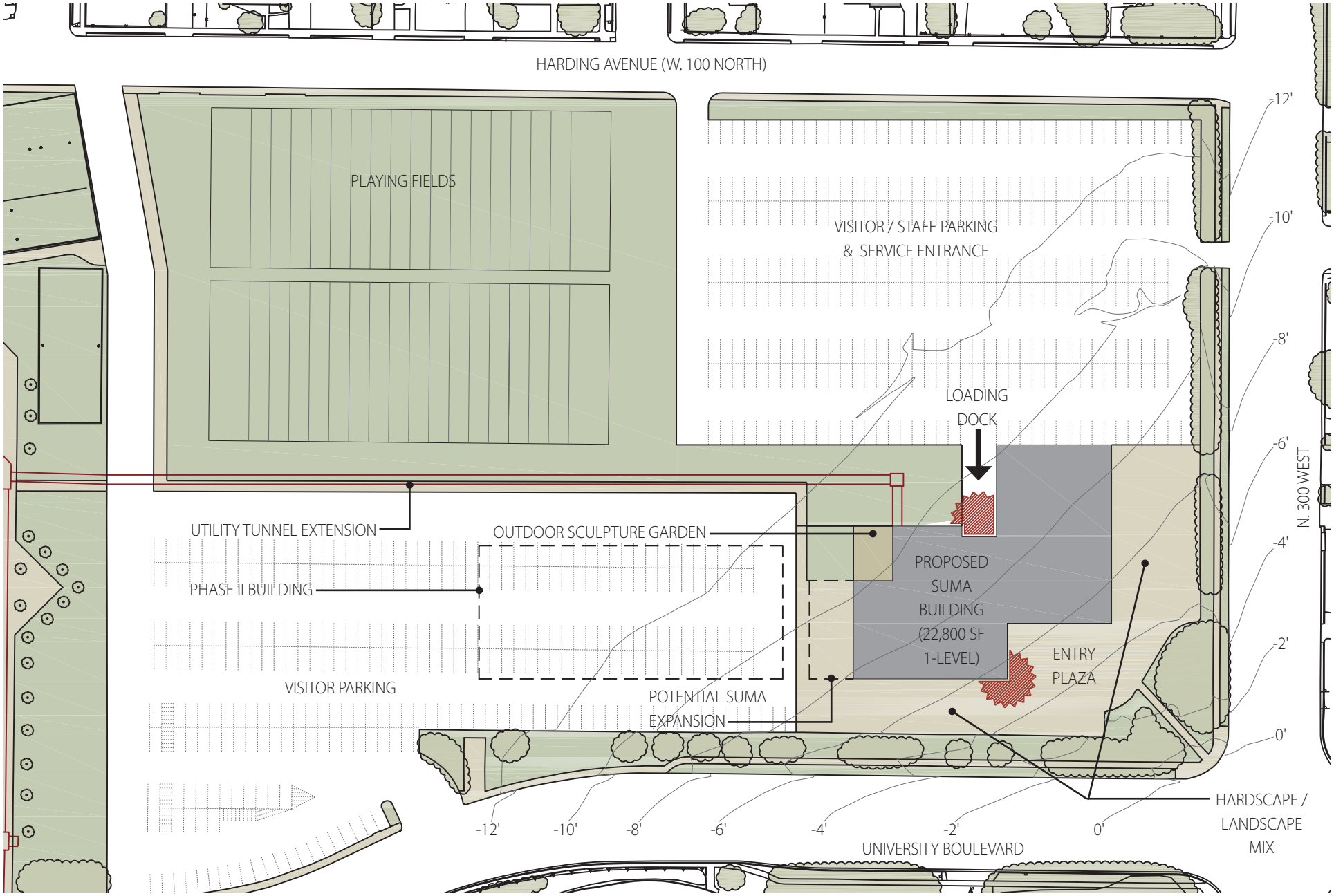
Site Option A



N

50' 0' 100' 200'

Site Option B



N

50' 0' 100' 200'

Site Option D

The future museum is fortunate that Southern Utah University has a graduate museum studies department that is thoroughly versed in museum standards. Selected documents from the American Association of Museums have been included as a general reference for the mandate that the future museum meets the requirements and has the characteristics to apply for and achieve accreditation. Some of the core requirements described are:

- The ethical standards and institutional structure
- The level of necessary professional staffing
- The rigorous long-term planning expected of an accredited museum

American Association of Museums Accreditation Documents

E

APPENDIX E CONTENTS

All documents courtesy of the American Association of Museums (AAM)

The Accreditation Commission's Expectations Regarding Institutional Mission Statements
The Accreditation Commission's Expectations Regarding An Institutional Code of Ethics
The Accreditation Commission's Expectations Regarding Governance
The Accreditation Commission's Expectations Regarding Institutional Planning
The Accreditation Commission's Expectations Regarding Collections and Stewardship
The Accreditation Commission's Expectations Regarding Delegation of Authority
AAM Standards Regarding Facilities and Risk Management
Accreditation Commission Report on Museum Systems and the AAM Accreditation Program
AAM Best Practices and Other Policies
Expansionism...Successes and Failures by Martha Morris

THE ACCREDITATION COMMISSION'S EXPECTATIONS REGARDING INSTITUTIONAL MISSION STATEMENTS

Approved December 17, 2004
Effective January 1, 2005

The Accreditation Commission's expectations reflect the evolving nature of standards and practices in museums. During its review of over 100 institutions a year, the Commission discusses how current practices in museums relate to the existing eligibility criteria and Characteristics of an Accreditable Museum. These Expectations support and elaborate on the Characteristics of an Accreditable Museum. Periodically, after thorough deliberation, the Commission revises its expectations to stay current with evolving standards. The Commission focuses on presenting desired outcomes rather than on prescribing methods by which these outcomes must be achieved.

Why does the Commission consider a mission statement important?

- Since the Accreditation Program's inception, the need for a clearly delineated mission statement has been emphasized.
- The Accreditation Commission uses the mission statement, as written by the museum itself, to evaluate the museum's performance. One of the Two Core Questions2 underlying each accreditation review is: How well does the museum achieve its stated mission and goals?
- This emphasis acknowledges an effective and replicable practice: Museums that use clearly delineated mission statements to guide their activities and decisions are more likely to function effectively.

What are the Accreditation Commission's expectations regarding mission statements?

Per Program Eligibility Criteria:

- All accredited museums are required to have a formally stated and approved mission.

Characteristics of an Accreditable Museum Related to Mission:

- The museum asserts its public service role and places education at the center of that role.
- The museum is committed to public accountability and is transparent in its mission and its operations.
- The museum has a clear understanding of its mission and communicates why it exists and who benefits as a result of its efforts.
- All aspects of the museum's operations are integrated and focused on meeting its mission.
- The museum's governing authority and staff think and act strategically to acquire, develop, and allocate resources to advance the mission of the museum.

How does a clearly delineated mission statement guide museum activities and decisions?

- A mission statement describes the purpose of a museum—its reason for existence. It defines the museum's unique identity and purpose, and provides a distinct focus for the institution.
- A mission statement articulates the museum's understanding of its role and responsibility to the public and its collections, and reflects the environment in which it exists.
- Activities of the museum should support, directly or indirectly, the mission.

What makes a clearly delineated museum mission statement?

- A mission statement should state what the museum does, for whom, and why.

THE ACCREDITATION COMMISSION'S EXPECTATIONS REGARDING AN INSTITUTIONAL CODE OF ETHICS

Approved December 17, 2004

Effective January 1, 2005

The Accreditation Commission's expectations reflect the evolving nature of standards and practices in museums. During its review of over 100 institutions a year, the Commission discusses how current practices in museums relate to the existing eligibility criteria and Characteristics of an Accreditable Museum. These Expectations support and elaborate on the Characteristics of an Accreditable Museum. Periodically, after thorough deliberation, the Commission revises its expectations to stay current with evolving standards. The Commission focuses on presenting desired outcomes rather than on prescribing methods by which these outcomes must be achieved.

What are the Accreditation Commission's expectations regarding an institutional code of ethics?

All accredited museums are required to have a formally approved, separate, and distinct institutional code of ethics. Museums are required to submit a copy as part of an accreditation review.

Characteristics of an Accreditable Museum Related to Ethics:

- The museum is a good steward of its resources held in the public trust.
- The museum is committed to public accountability and is transparent in its mission and operations.
- The governing authority, staff, and volunteers legally, ethically, and effectively carry out their responsibilities.

What constitutes a separate and distinct institutional code of ethics?

The Commission expects an institutional code of ethics to:

- put forth the institution's basic ethical responsibilities as a museum and nonprofit educational entity (not solely be about individual conduct, e.g., conflict of interest issues)
- be tailored to the museum (it cannot simply be a restatement of the AAM Code of Ethics for Museums (2000)2 or a declaration of adoption of AAM's code, or simply a copy of a parent organization's code)
- be consistent with the AAM Code of Ethics for Museums (2000)
- state it applies to members of the governing authority
- state it applies to staff
- state it applies to volunteers
- be a single document, not a compilation or list of references to other documents
- be approved by the governing authority

In addition, the following may be incorporated into the institutional code of ethics, or exist as separate documents, in which case they should be referenced in the institutional code of eithics:

- Sections on individual ethics, personal conduct, and conflict of interest issues that spell out such details for staff, volunteers, and members of the governing authority. May exist separately in, for example, a personnel policy.
- Sections on collections-related ethics. This may exist separately in the museum's collections management policies.
- The museum may also adhere to codes of ethics specific to its discipline/collections (see below) and/or professional museum functions (e.g., AAM Curators Code of Ethics). Adoption of these codes cannot replace a separate institutional code. However, if the museum chooses to adhere to these codes, its code of ethics either should incorporate appropriate language from those codes or cite them and indicate that the museum will abide by them.

Why does the Commission consider having an institutional code of ethics important?

To ensure accountability:

The effectiveness of a nonprofit institution is directly related to the public's perception of its integrity. A formally stated institutional code of ethics is evidence of a critical internal process: to write an institutional code of ethics, an institution must collectively discuss the issues it faces and determine what ethical principles are needed to guide its operations and protect its integrity.

To ensure informed decision-making:

Developing and implementing an institutional code of ethics leads to informed oversight and benefits the institution in several ways. It creates internal agreement about which actions are consistent with the institution's mission. It serves as a self-made reference point for institutional choices. It also is a practical and effective tool in risk management—protecting both assets and reputation.

An institutional code of ethics:

- expresses the institution's policies, consistent with the public service it affirms in its mission statement
- puts the interests of the public ahead of the interests of the institution or of any individual
- encourages conduct that merits public confidence
- acknowledges applicable laws (including the institution's own bylaws or charter)
- acknowledges appropriate discipline-specific professional practices and meets or exceeds them (see below)

What ethical issues should a museum address?

The Commission expects an accredited museum to have ethical guidelines—either as part of its institutional code or in other approved policies (e.g., personnel policies, collections management policy)—that address:

- Ethical duties of the governing authority, staff, and volunteers
- Ethics related to the relationship of the governing authority and director
- Conflict of interest (for example: disclosure, gifts and favors, loans, outside employment, personal collecting, purchases of museum property, use of assets, and confidentiality)
- Collections ethics issues (for example: acquisition, deaccession, care & preservation/conservation, appraisals, dealing, access to the collection, truth in presentation)
- Museum management practices (for example: legal compliance, ownership of intellectual property/scholarly research, personnel management)
- Responsibility to the public

In addition, it is also considered best practice to have policies that address (where applicable):

- Management of business or individual support
- Commercial activities
- Political activities

The institutional code of ethics should also contain a section addressing how the code will be implemented.

When is a museum expected to abide by discipline-specific ethics statements or guidelines?

As indicated in the Two Core Questions, the Accreditation Commission expects museums to abide by "standards and best practices as they are generally understood in the museum field." Some discipline-specific associations have issued ethics statements or guidelines applicable to their disciplines or members. The Commission expects a museum to adhere to these ethics guidelines if they are:

- broadly applicable to all museums in that segment of the museum field
- non-prescriptive—describing desirable outcomes rather than endorsing particular methods of achieving these outcomes
- based when possible on applicable existing, widely accepted principles in the field
- developed through a broadly inclusive process that gathers input from museums of relevant disciplines, geographic location, size, governance type, and other relevant variables

For example, history organizations are expected to adhere to The Statement of Professional Standards and Ethics of the American Association for State and Local History. Art museums that are members of the Association of Art Museum Directors are expected to adhere to Professional Practices in Art Museums of that association. When developing their codes of ethics, general museums (those that encompass two or more disciplines) must decide how these discipline-specific codes apply to their overall operations and make the reasoning behind those decisions clear.

What are the Accreditation Commission's expectations regarding institutions that are part of a museum system or parent organization?

Museums governed by a larger institution/organization that does not have museum management as its primary operating purpose are required to have an institutional code of ethics that addresses the museum-specific issues outlined in this Expectation.

THE ACCREDITATION COMMISSION'S EXPECTATIONS REGARDING GOVERNANCE

Approved December 17, 2004
Effective January 1, 2005

The Accreditation Commission's expectations reflect the evolving nature of standards and practices in museums. During its review of over 100 institutions a year, the Commission discusses how current practices in museums relate to the existing eligibility criteria and Characteristics of an Accreditable Museum. These Expectations support and elaborate on the Characteristics of an Accreditable Museum. Periodically, after thorough deliberation, the Commission revises its expectations to stay current with evolving standards. The Commission focuses on presenting desired outcomes rather than on prescribing methods by which these outcomes must be achieved.

Why does the Commission consider governance to be so important?
Good governance is the foundation that enables the museum to succeed. The effective operation of a museum is based on a well-functioning governing authority that has a strong working relationship with the museum director. Together, the governing authority and director set the direction of the museum, obtain and manage the resources needed for it to fulfill its mission, and ensure that the museum is accountable to the public.

What are the Accreditation Commission's expectations regarding governance?
These expectations apply to all accredited museums, regardless of governance type, structure, or name.

To be eligible to participate in the Accreditation Program, a museum must:

- have a full-time director to whom authority is delegated for day-to-day operations
- have at least one paid professional staff with museum knowledge and experience

Characteristics of an Accreditable Museum Related to Governance:
The governance, staff, and volunteer structures and processes effectively advance the mission.

- The governing authority, staff, and volunteers have a clear and shared understanding of their roles and responsibilities.
- The governing authority, staff, and volunteers legally, ethically, and effectively carry out their responsibilities.
- The composition and qualifications of the museum's leadership, staff, and volunteers enable it to carry out the museum's mission and goals.
- There is a clear and formal division of responsibilities between the governing authority and any group that supports the museum, whether separately incorporated or operating within the museum or its parent organization.

The Commission expects the governing authority of an accreditable museum to fulfill the basic responsibilities of nonprofit governance.
The governing authority:

- Determines the organization's mission and purposes
- Selects the chief executive
- Supports the chief executive and assesses his or her performance
- Ensures effective organizational planning
- Ensures adequate resources
- Manages resources effectively (including exercising good stewardship of collections and historic structures, if applicable)
- Ensures the organization's programs and services advance the mission
- Enhances the organization's public standing
- Ensures legal and ethical integrity and maintains accountability
- Recruits and orients new members of the governing authority and assesses performance of the governing authority

For museums that have remote governance, these responsibilities may be spread out along a designated chain of command. In such cases, the Commission expects that the responsibilities are clearly assigned to particular positions. For museums with joint governance these responsibilities may be partitioned between different entities. See below regarding the Commission's expectations in these situations.

What are the Commission's expectations for museums with joint governance?
In museums with joint governance, in which the basic responsibilities of

governance are shared between two or more groups (e.g., a city and a private, nonprofit organization, or a university and an advisory board), or when a separate entity provides resources vital to the museum's operation (e.g., land, collections, building, staff) the Commission expects:

- that the museum clearly identify all the groups that are engaged in governance or provision of these vital resources, and the responsibilities of each group
- that these relationships be detailed in formal, written documents (e.g., memoranda of agreement, memoranda of understanding, operating agreement)

What is evidence of good governance?

As evidence that good governance practices are in place, and to demonstrate that the museum is meeting the above Characteristics of an Accreditable Museum, the Commission expects museums to have the following documents and provide them as part of an accreditation review:

- Mission statement
- Institutional plan
- Articles of incorporation, charter, enabling legislation, or other founding document
- Bylaws, constitution, will, or other documentation under which the museum is governed
- If the museum has a parent organization: Documentation regarding the importance of the museum to the parent, expressing its commitment to support the museum (e.g., resolution of permanence passed by parent, parent organization's bylaws or organizing documents, memorandum of understanding or management agreement between the parent and the museum)
- Documentation of operational relationships with other organizations integrally connected to the museum's governance or operations (e.g., written memorandum of understanding or other type of formal agreement)
- List of current members of the governing authority
- Evidence of delegation of authority for operation of the museum to the museum director or the equivalent position
- Table of contents of the governance manual (i.e., reference manual assembled for use by members of the governing authority to assist with orientation, training, and ongoing work)
- Organizational chart(s) for the museum, including parent organization, governing authority, partner organization, advisory board, supporting organizations, staff, and volunteers as applicable
- Institutional code of ethics
- Audited financial statements for two years plus management letters (if most recent year is not yet available, submit unaudited year-end financial report)
- Current year operating budget and non-operating expenditures

In addition, the following documents are not required but should be provided if available:

- Samples of tools the museum uses to assess whether it has achieved its goals (e.g., visitor satisfaction surveys, exhibition evaluations, program evaluations, focus group questions/reports, community surveys, financial/other performance indicators, etc.)
- Vision/values statement(s)
- Documentation regarding any internal, non-governing groups that serve in an advisory capacity (e.g., resolution of the board establishing this group, statement of purpose, operating guidelines, etc.)
- Investment policy
- Annual reports produced within the last three years

What are the Commission's expectations regarding the composition of the governing authority?

The Commission expects that the governing authority will:

- cycle in new people and new ideas
- reflect the diversity of the communities it serves
- provide opportunities for external input so that the governing authority is accountable to those communities
- ensure that members of the governing authority are evaluated on their performance and non-performing members are cycled out

There do not have to be term limits for the service of members of the governing authority, though this is one method traditionally employed by museums to achieve these goals.

When it is not possible to control these factors within the governing authority itself (e.g., museums within parent organizations, those with remote governance, or those that are government-governed) the Commission expects the museum find other ways to accomplish the goals outlined above. This may include establishing supporting groups as needed to assist with governance (e.g., advisory boards, auxiliary groups, community boards).

Glossary

Bylaws: Legal documents that describe matters delegated to the governing authority, such as membership categories, the logistics of scheduling and holding meetings of the corporation and the governing authority, committee charges, and provisions for amendments. Self-regulatory provisions for the governing authority, such as membership in the organization, attendance requirements, and termination, also are in the bylaws.

Community: In the Accreditation Program, a museum self-identifies the community or communities it serves. This may be a geographically defined community, (e.g., neighborhood, academic campus, a town, city, county, or region), a community of interest (e.g., the scientific community; the international business community), or a group viewed as forming a distinct segment of society (e.g., the gay community; the community of color), or a combination of these types.

Fiduciary: Of or relating to a holding of something in trust for another: a fiduciary heir; a fiduciary contract; of or being a trustee or trusteeship; held in trust.

Governance Manual: Reference manual assembled for use by members of the governing authority to assist with their orientation, training, and ongoing work. It may include, for example, copies of the museum's mission statement, bylaws, current institutional plan, policies, and minutes of past meetings.

Governing Authority: The body with legal and fiduciary responsibility for the museum. Unless delegated to another body or through a chain of command, also responsible for approving museum policy. Names of the Governing Authority include but are not limited to: board of commissioners, board of directors, board of managers, board of regents, board of trustees, city council, commission.

Joint Governance: A governance structure in which two or more entities share governance of the museum. This involves dividing or sharing basic governance responsibilities such as determining mission and purpose; hiring, supporting, and evaluating the director; strategic planning; obtaining and managing resources; and monitoring the organization's programs and services. For example: a museum jointly governed by a city government, which owns the collections and the building and employs the staff, and a private nonprofit, which determines museum policy and operates the museum. Or a university that owns and manages a museum, but delegates responsibility for determining programs and services to an advisory board. Does not automatically include museums that have separately incorporated friends organizations, unless the friends organization has significant responsibility for governance of the museum delegated to it in writing.

Remote Governance: Governance in which the museum director reports only indirectly, through a chain of command, to the actual governing authority. For example: the governing authority of a university museum might be the Board of Regents and the director reports through the provost, to the university president, to the Regents. The director of a museum in the state parks department might report through a parks manager, to the head of the state department of parks and recreation, to the governor.

Supporting Group: A group whose primary purpose is to support the museum, but which has no governing authority and responsibility for the museum. The group may provide financial support, volunteers, expertise, or advocacy to complement the knowledge and skills of the governing authority. Supporting groups may be called, for example, advisory boards, friends, guilds, or auxiliary boards.

- External supporting groups are informal associations or separately incorporated nonprofit entities. They are independent of the museum in their own governance. The Accreditation Commission expects there to be a letter of understanding, a management agreement, or other document detailing the relationship between an external supporting group and the museum's governing authority.
- Internal supporting groups are part of the museum itself, either as an informal association or by appointment of the governing authority. They serve at the pleasure and under the direction of the museum's governing authority or its designee.

THE ACCREDITATION COMMISSION'S EXPECTATIONS REGARDING INSTITUTIONAL PLANNING

Approved on December 17, 2004
Effective January 1, 2005

The Accreditation Commission's expectations reflect the evolving nature of standards and practices in museums. During its review of over 100 institutions a year, the Commission discusses how current practices in museums relate to the existing eligibility criteria and Characteristics of an Accreditable Museum. These Expectations support and elaborate on the Characteristics of an Accreditable Museum. Periodically, after thorough deliberation, the Commission revises its expectations to stay current with evolving standards. The Commission focuses on presenting desired outcomes rather than on prescribing methods by which these outcomes must be achieved.

What are the Accreditation Commission's expectations regarding institutional planning?

Characteristics of an Accreditable Museum Related to Planning:

- All aspects of the museum's operations are integrated and focused on meeting its mission.
- The museum's governing authority and staff think and act strategically to acquire, develop, and allocate resources to advance the mission of the museum.
- The museum engages in ongoing and reflective institutional planning that includes involvement of its audiences and community.
- The museum establishes measures of success and uses them to evaluate and adjust its activities.

An accreditable museum engages in current, comprehensive, timely, and formal planning for its future.

Planning is:

- current when it is up-to-date, and reflective of an on-going process
- comprehensive when it covers all relevant aspects of museum operations (e.g., not just a facility master plan)
- timely when it is geared to significant events in the museum's lifecycle (e.g., changes in size, scope, purpose, governance, etc.)
- formal when the process and outcome are documented in writing and approved by vote of the governing authority

The Commission expects the museum to provide evidence of planning in the form of:

- documentation of the planning process (e.g., committee lists, meeting minutes, planning schedules)
- a current, comprehensive, timely, and formal institutional plan that includes both strategic and operational elements

An accreditable museum uses planning to:

set goals and establish strategies by which it will achieve them

ensure that the museum acquires, develops, and allocates its resources (human, financial, physical) in a way that advances its mission and sustains its financial viability

- gather appropriate information to guide its actions, including input from stakeholders and data from benchmarking
- establish measures by which the museum will assess its achievements

Why does the Commission consider strategic planning important?

Strategic planning:

- produces a mutually agreed upon vision of where the museum is going and what it wants to achieve
- ensures this vision meets the needs of its audiences and community
- ensures that the museum identifies how it will obtain the resources to fulfill this vision
- allows the museum to make sound decisions in response to changes in its operating environment

What are the Commission's expectations for the process?

The Commission expects the process to be:

- inclusive of all stakeholders: staff, governing authority, audiences, and community
- on-going
- reflective
- documented

The Commission expects a museum undergoing an initial or subsequent accreditation review to provide a written, approved plan that is currently guiding its operations. If the plan's timeframe has just ended, or is about to expire, the Commission expects the museum to be engaged in revising the current plan or creating a new plan, and to document this process, including the method,

participants, schedule, draft outcomes, etc. In such cases, a preliminary or draft version of the new plan, in conjunction with evidence of a well-managed planning process, is acceptable to submit in the interim.

What are the Commission's expectations for the plan?

Each museum's institutional plan should include a multi-year and an operational plan, a combination of the two, or the functional equivalent. See the Glossary at the end for definitions and characteristics of each type of plan.

Each museum's planning documents will look different. However, the Commission expects the plan(s) to:

- be captured in written documents and approved by the governing authority
- be based on the mission
- be tied to other relevant planning documents (e.g., financial plans, development plans, interpretive plans, collections plans)
- set priorities—help the museum make choices and allocate available resources
- identify how the institution will secure the human and financial resources needed to implement the plan—bring resources and goals into alignment
- be living documents—continually used and updated by the staff and governing authority
- establish measurable goals and methods by which the museum will evaluate success
- include action steps, establish timelines, and assign responsibility for implementation

A compilation of implementation plans, studies, etc. does not meet the Accreditation Commission's expectations for a strategic plan—an integrated, comprehensive document is required.

Planning by museums within non-museum parent organizations

Museums operated by a parent organization for which museum management is not the primary purpose (e.g., a university, or government agency) must provide evidence of a museum/site-specific planning process and plan, both of which should be linked to the parent organization's planning. The parent organization's planning process and documents should also reflect support for the museum's mission and ensure that museum/site-specific goals can be achieved.

Glossary

Benchmark: A point of reference used in measuring and/or judging quality or value.

Benchmarking: The process of comparing your museum's operations to some point of reference for the purpose of setting goals, evaluating performance, and making decisions about whether and how to change. There are several points of reference: internal—between departments or against the museum's history, external—comparison to selected peers, and external—comparison to the museum field.

Institutional plan: Comprehensive plan that broadly delineates where the institution is going and provides sufficient detail to guide implementation. Sets priorities and guides important decisions that are oriented towards the future. Some museums split this into two parts:

- Multi-year plan: Big-picture plan that sets strategies, goals, and priorities. Sometimes referred to as a strategic or long-range plan.
- Operational plan: Plan that provides the details needed to implement the decisions in the strategic or long-range plan. Usually focuses on a short period of time, and is typically geared to the museum's budget year. Sometimes referred to as an implementation plan.

There is great variability in how museums refer to these planning documents and divide particular functions between them. The commission does not mandate a particular format or nomenclature.

THE ACCREDITATION COMMISSION'S EXPECTATIONS REGARDING COLLECTIONS STEWARDSHIP

Approved December 17, 2004
Effective January 1, 2005

The Accreditation Commission's expectations reflect the evolving nature of standards and practices in museums. During its review of over 100 institutions a year, the Commission discusses how current practices in museums relate to the existing eligibility criteria and Characteristics of an Accreditable Museum. These Expectations support and elaborate on the Characteristics of an Accreditable Museum. Periodically, after thorough deliberation, the Commission revises its expectations to stay current with evolving standards. The Commission focuses on presenting desired outcomes, rather than on prescribing methods by which these outcomes must be achieved.

Why does the Commission consider collections stewardship important?

Stewardship is the careful, sound, and responsible management of that which is entrusted to a museum's care. Possession of collections incurs legal, social, and ethical obligations to provide proper physical storage, management, and care for the collections and associated documentation, as well as proper intellectual control. Collections are held in trust for the public and made accessible for the public's benefit. Effective collections stewardship ensures that the objects the museum owns, borrows, holds in its custody, and/or uses are available and accessible to present and future generations. A museum's collections are an important means of advancing its mission and serving the public.

What are the Accreditation Commission's expectations regarding collections stewardship?

Per Program Eligibility Criteria:

- An accredited museum, either collecting or non-collecting, is required to have a formal and appropriate program of documentation, care, and use of collections.
- An institution that owns collections (including living organisms), whether actively collecting or not, is required to have accessioned at least 80 percent of its permanent collections.

P er the Characteristics of an Accreditable Museum, an accreditable museum must demonstrate that it:

- owns, exhibits, or uses collections that are appropriate to its mission
- legally, ethically, and effectively manages, documents, cares for, and uses the collections
- conducts collections-related research according to appropriate scholarly standards
- strategically plans for the use and development of its collections
- guided by its mission, provides public access to its collections while ensuring their preservation
- allocates its space and uses its facilities to meet the needs of the collections, audience, and staff
- has appropriate measures in place to ensure the safety and security of people, its collections and/or objects, and the facilities it owns or uses
- takes appropriate measures to protect itself against potential risk and loss

The Commission also expects an institution to:

- plan strategically and act ethically with respect to collections stewardship matters
- legally, ethically, and responsibly acquire, manage, and dispose of collection items as well as know what collections are in its ownership/custody, where they came from, why it has them, and their current condition and location
- provide regular and reasonable access to, and use of, the collections/objects in its custody

This requires thorough understanding of collections stewardship issues to ensure thoughtful and responsible planning and decision-making. With this in mind, the Commission emphasizes systematic development and regular review of policies, procedures, practices, and plans for the goals, activities, and needs of the collections.

How does the Commission assess whether the institution's collections and/or objects are appropriate for its mission?

The Commission compares the institution's mission—how it formally defines its unique identity and purpose, and its understanding of its role and responsibility to the public—to two things:

- the collections used by the institution, and
- its policies, procedures, and practices regarding the development and use of collections

In its review, the Commission examines whether:

- the mission statement or collections documents (e.g., collections management policy, collections plan, etc.) are clear enough to guide collections stewardship decisions
- the collections owned by the museum, and objects loaned and exhibited at the museum, fall within the scope of the stated mission and collections documents.
- the mission and other collections stewardship related documents are in alignment and guide the museum's practices.

How does the Commission assess whether the institution effectively manages, documents, and cares for its collections and/or objects?

The Commission recognizes that:

- there are different ways to manage, house, secure, document, and conserve collections, depending on their media and use, the museum's own discipline, size, physical facilities, geographic location, and financial and human resources. Therefore, the Commission considers many facets of an institution's operations that taken together, demonstrate the effectiveness of its collections stewardship policies, procedures, and practices. The Commission considers the museum's collections stewardship policies, procedures, and practices in light of these varying factors.
- museums may have diverse types of collections categorized by different levels of purpose and use—permanent, educational, archival, research, study, to name a few—that may have different management and care needs. The Commission expects these distinctions to be articulated in collections stewardship-related policies and procedures.
- different museum disciplines may have different collections stewardship practices, issues, and needs related to their specific field. The Commission expects museums to follow the standards and best practices appropriate to their respective discipline and/or museum type as applicable.

In its review, the Commission expects that:

- a current, approved, comprehensive collections management policy is in effect and actively used to guide the museum's stewardship of its collections
- 80 percent of the permanent collection is formally accessioned and an appropriate and reasonable percentage of the permanent collection is cataloged, inventoried, and visually documented
- the human resources are sufficient, and the staff have the appropriate education, training, and experience, to fulfill the museum's stewardship responsibilities and the needs of the collections
- staff are delegated responsibility to carry out the collections management policy
- a system of documentation, records management, and inventory is in effect to describe each object and its acquisition (permanent or temporary), current condition and location, and movement into, out of, and within the museum
- the museum regularly monitors environmental conditions and takes pro-active measures to mitigate the effects of ultraviolet light, fluctuations in temperature and humidity, air pollution, damage, pests, and natural disasters on collections
- an appropriate method for identifying needs and determining priorities for conservation/care is in place
- safety and security procedures and plans for collections in the museum's custody are documented, practiced, and addressed in the museum's emergency/disaster preparedness plan
- regular assessment of, and planning for, collection needs (development, conservation, risk management, etc.) takes place and sufficient financial and human resources are allocated for collections stewardship
- collections care policies and procedures for collections on exhibition, in storage, on loan, and during travel are appropriate, adequate, and documented
- the scope of a museum's collections stewardship extends to both the physical and intellectual control of its property
- ethical considerations of collections stewardship are incorporated into the appropriate museum policies and procedures
- considerations regarding future collecting activities are incorporated into institutional plans and other appropriate policy documents

The Commission also reviews the following documents required to be submitted as part of the accreditation process:

- Repository agreement for objects in custody without title (required for some museums)
- Visual images that illustrate the scope of the museum's collections
- Collections management policy and loan policies (custodial care and borrowing policies for museums that do not own or manage collections, but borrow and use collections for exhibits, education, or research)
- Sample copy of completed collections documentation record(s) (with accession, catalog, and inventory information)
- If the museum is authorized to deaccession, a copy of a deaccession form or other written documentation used for deaccessioning purposes (a completed form if applicable, otherwise a blank form)
- Sample copy of a completed outgoing loan agreement
- Sample copy of a completed incoming loan agreement
- Sample copy of completed condition report form
- Emergency/disaster preparedness plan (covering staff, visitors, and collections)

In addition, the following documents are not required but should be provided if available:

- Collections plan
- Conservation plan
- Completed RC-AAM Standard Facility Report

Glossary

Accessioning: a) Formal act of accepting an object or objects to the category of materials that a museum holds in the public trust. b)The creation of an immediate, brief, and permanent record utilizing a control number for an object or group of objects added to the collection from the same source at the same time, and for which the museum has custody, right, or title. Customarily, an accession record includes, among other data, the accession number; date and nature of acquisition (gift, excavation, expedition, purchase, bequest, etc.); source; brief identification and description; condition; provenance; value; and name of staff member recording the accession.

Care: The museum keeps appropriate and adequate records pertaining to the provenance, identification, and location of the museum's holdings and applies current professionally accepted methods to their security and the minimization of damage and deterioration.

Collections: Objects, living or nonliving, that museums hold in trust for the public. Items usually are considered part of the museum's collections once they are accessioned. Some museums designate different categories of collections (permanent, research, educational) that functionally receive different types of care or use. These categories and their ramifications are established in the museum's collections management policy.

Collections management policy: A written document, approved by the governing authority, which specifies the museum's policies concerning all collections-related issues, including accessioning, documentation, storage, and disposition. Policies are general guidelines that regulate the activities of the organization. They provide standards for exercising good judgment.

Collections plan: A plan that guides the content of the collections and leads staff in a coordinated and uniform direction over time to refine and expand the value of the collections in a predetermined way. Plans are time-limited and identify specific goals to be achieved. They also provide a rationale for those choices, and specify how they will be achieved, who will implement the plan, when it will happen, and what it will cost.

Objects: Materials used to communicate and motivate learning and instruments for carrying out the museum's stated purpose.

Standard Facility Report: A standardized form developed by the AAM's Registrar's Committee (RC-AAM) to expedite the exchange of information critical to lenders and insurers. Museums fill in information about their physical specifications, and policies and procedures related to environmental controls, fire protection, security, handling/packing, and loans. Available only through purchase from the AAM Bookstore.

THE ACCREDITATION COMMISSION'S EXPECTATIONS REGARDING DELEGATION OF AUTHORITY

Approved December 17, 2004
Effective January 1, 2005

The Accreditation Commission's expectations reflect the evolving nature of standards and practices in museums. During its review of over 100 institutions a year, the Commission discusses how current practices in museums relate to the existing eligibility criteria and Characteristics of an Accreditable Museum. These Expectations support and elaborate on the Characteristics of an Accreditable Museum. Periodically, after thorough deliberation, the Commission revises its expectations to stay current with evolving standards. The Commission focuses on presenting desired outcomes rather than on prescribing methods by which these outcomes must be achieved.

What are the Accreditation Commission's expectations regarding delegation of authority?

Eligibility requirements stipulate an accredited museum have a full-time director to whom authority is delegated for day-to-day operations. (There must also be at least one paid professional staff with museum knowledge and experience. While this is usually also the director, is does not necessarily have to be the director.)

All accredited museums are required to submit documentation that the governing authority has formally delegated to this position the full responsibility for the operation and management of the museum. This position functionally is the chief executive officer with responsibilities including, but not limited to, hiring and firing staff, executing the budget, implementing policies, and managing programs and staff.

Furthermore, per the Characteristics of An Accreditable Museum, the Commission looks for evidence that the governing authority, staff, and volunteers have a clear and shared understanding of their roles and responsibilities.

See also the Accreditation Commission's Expectations Regarding Governance (www.aam-us.org/accred).

Why does the Commission consider delegation of authority important?

Having clear delegation of authority means that the governing authority understands the main areas of its responsibility. Those areas are to collectively determine mission, set policies for operations, ensure that charter and bylaw provisions are followed, plan for the institution, approve budgets, establish financial controls, and ensure that adequate resources are available to advance the museum's mission.

How does delegation of authority lead to effective leadership and organizational structure?

When there is clarity about the distinct roles of governance and management, each can focus on the work they need to do. There is communication and collaboration, but no duplication of effort. Delegation of authority creates this clarity of roles. Since the governing authority has hired a director (or equivalent position) with the expertise to run the museum, it should allow the director to perform his or her responsibilities without interference.

An unencumbered line of authority allows the institution to achieve more. It promotes good use of resources, including time. The director has the authority to act independently and oversee the day-to-day operations while the governing authority uses its time to make decisions that steer the institution. Staff at all levels should be clear about the chain of command.

What does the Commission consider documentation of delegation of authority?

Documentation of the delegation of authority may be found in the bylaws of the institution, the formally approved job description of the director (or equivalent position), and, to apprise all staff, is often stated in the institution's staff handbook.

Glossary

Director: The individual who is delegated authority for the day-to-day operations of the museum and allocated resources sufficient to operate the museum effectively. Functionally, this position is the chief executive officer with responsibilities including, but not limited to, hiring and firing staff, executing the budget, implementing policies, and managing programs and staff. May be called CEO, Museum Administrator, Site Manager, Curator, etc.

Fiduciary: Of or relating to a holding of something in trust for another: a fiduciary heir; a fiduciary contract; of or being a trustee or trusteeship; held in trust.

Governing Authority: The body with legal and fiduciary responsibility for the museum. Unless delegated to another body or through a chain of command, also responsible for approving museum policy. Names of the Governing Authority include but are not limited to: board of commissioners, board of directors, board of managers, board of regents, board of trustees, city council, commission.

AAM STANDARDS REGARDING FACILITIES AND RISK MANAGEMENT

Approved by the AAM Board of Directors July, 2007

Why are facilities and risk management important?

Museums care for their resources in trust for the public. It is incumbent upon them to ensure the safety of their staff, visitors, and neighbors, maintain their buildings and grounds, and minimize risk to the collections that they preserve for future generations. Conscious, proactive identification of the risks that face people and collections, and appropriate allocation of resources to reduce these risks is a vital part of museum management.

What are AAM standards regarding facilities and risk management?

The AAM Characteristics of Excellence, as related to facilities and risk management, state:

- The museum is a good steward of its resources held in the public trust.
- The museum demonstrates a commitment to providing the public with physical and intellectual access to the museum and its resources.
- The museum complies with local, state, and federal laws, codes, and regulations applicable to its facilities, operations, and administration.
- The museum allocates its space and uses its facilities to meet the needs of the collections, audience, and staff.
- The museum has appropriate measures to ensure the safety and security of people, its collections and/or objects, and the facilities it owns or uses.
- The museum has an effective program for the care and long-term maintenance of its facilities.
- The museum is clean and well maintained, and provides for the visitors' needs.
- The museum takes appropriate measures to protect itself against potential risk and loss.

Simply put, a museum should manage its facilities, e.g., buildings and grounds, in such a manner as to ensure that they are:

- Clean
- Well maintained
- Safe
- Accessible

Risk management is an institution-wide activity encompassing functions as diverse as building and site security, visitor services, integrated pest management, storage and use of hazardous materials, and insurance. A museum should manage risk to ensure that:

- Risks to people (visitors, staff, neighbors) and to collections are accurately identified and assessed.
- Appropriate methods are employed to avoid, block, mitigate, share, and assume or insure against risk.
- Resources are appropriately allocated so as to have the greatest effect on reducing risk to people, facilities, and collections.

Museums should also have:

- Regular, adequate training of staff in implementation of an emergency preparedness plan, including practice or drills
- Inspections related to facilities and risk (fire, health and safety, etc., as appropriate to the institution's circumstances)
- A process for addressing deficiencies identified in these inspections
- A program of health and safety training for staff and volunteers, as appropriate to the institution's circumstances

AAM expects museums to comply with all applicable local, state, federal, and laws, codes, and regulations.

What are AAM standards for facilities and risk management as related to contractors?

When museums contract out key services related to facilities (e.g., food service, museum store, housekeeping, security) they are expected to require contractors to abide by AAM standards regarding facilities and risk management. If the museum does not have control over the contract governing this relationship (e.g., a city hires and supervises contractors operating in the museum's building) the museum should educate contractors on AAM standards and encourage them to abide by them.

What are AAM standards for museums housed in historic structures?

Museums housed in historic structures should balance the preservation needs of the building with actions necessary to mitigate risk to people and to the collections housed in the building. AAM standards do not dictate specifically how this is achieved—they focus on the outcome of appropriate risk management. For example, a historic house museum needs to weigh all relevant factors (mission, resources, impact on the structure, alternative mitigation techniques) when deciding whether to install an automated fire suppression system. In order to be accountable, the institution should be able to explain how its decisions are appropriate to its circumstances.

What documentation should a museum have as evidence of facilities and risk management?

Museums should have a current, comprehensive emergency/disaster preparedness plan that:

- Is tailored to the institution's needs and specific circumstances
- Covers all relevant threats
- Addresses staff, visitors, structures, and collections
- Includes evacuation plans for people
- Specifies how to protect, evacuate, or recover collections in the event of a disaster
- Delegates responsibility for implementation

Museums should also have certificates of inspection related to facilities and risk, as appropriate to their circumstances, when such certificates are provided by the inspecting agency.

See also AAM Standards Regarding Collections Stewardship for more information on standards about risk management specific to collections.

Notes for Accredited Museums

Although the Accreditation Program does not assess or certify compliance with local, state, federal, and international laws, codes, and regulations, institutions are expected to report appropriate inspections/certifications of compliance as part of their self-study.

As part of an accreditation review, the museum must also submit:

- Floor plan/site map
- Images of the museum's interior and exterior spaces

Glossary

Emergency/disaster preparedness plan: written policies and procedures intended to prevent or minimize damage to people (staff and visitors), buildings, collections, archival materials, or organizational records resulting from natural and manmade events that threaten the building and the people and objects inside it. All museums are expected to have plans that address how the museum will care for staff, visitors, and collections in case of emergency. This includes evacuation plans for staff and visitors, and plans for how to protect, evacuate, or recover collections in the event of disaster.

Health and safety training: theoretical and/or practical instruction regarding such issues as office ergonomics, safe lifting, blood-borne and airborne pathogen safety, hazards communication, and use of Material Safety Data Sheets.

Inspections related to facilities and risk: may include, for example, building occupancy permits, fire department inspections, health inspections of food service operations, USDA inspections of animal displays, and insurer inspections for safety issues.

Integrated pest management: the coordination of information about pests and environmental conditions with available pest control methods to prevent unacceptable levels of pest damage while minimizing hazards to people, property, collections, and the environment. IPM programs apply a holistic approach to pest management decision-making, and consider all appropriate options, including but not limited to pesticides.

Risk management: the overall process of identifying, controlling, and minimizing the impact of uncertain events in order to reduce the likelihood of their occurrence and/or the severity of their impact.

ACCREDITATION COMMISSION REPORT ON: MUSEUM SYSTEMS AND THE AAM ACCREDITATION PROGRAM

Issued February 2001; Revised February 2005

TERMINOLOGY
For the purposes of Accreditation:

Definition of a Museum System: A Museum System is a museum operation that has a complex organizational structure and/or facilities* in more than one location. Depending on the organizational structure and size of the museum system, it may pursue accreditation as one entity or as multiple entities.

Definition of a Single-Site Museum: A single museum, existing in one location, with no associated, branch or satellite operations other than off-site storage or administrative office space. This type of museum is not part of any museum system. A single-site museum pursues accreditation independent of any other museum.

Note: According to a 1999 survey by the Accreditation program, approximately 75% of museums that pursue accreditation are Single-Site Museums (based on working definitions disseminated in February 1999).

MUSEUM SYSTEMS

Museum Systems, like living organisms, are constantly changing—growing, reorganizing, and shedding and adding parts. The configuration of any one Museum System may evolve and change at different points in time. Also, like snowflakes, no two Museum Systems are the same. Each Museum System has a unique configuration. Recognizing this, the Accreditation Program has done extensive research to develop accreditation guidelines that are flexible but also provide an overarching framework to ensure that museums are treated fairly and consistently in the pursuit of accreditation. To-date research into Museum Systems has resulted in the following:

- Proposed organizational structures/models that generally reflect Museum Systems. These models are defined below and visually represented by Organizational Models A & B. These models are intended to serve as a framework to guide Museum Systems regarding an approach to accreditation.
- Definitions of different components (i.e. different units) that may comprise a Museum System. Each component is defined below. Note that a Museum System may not have all the components defined below and multiples of the same type of component can exist in a museum system.

Museum System Components

The Museum System Components identified and defined below are based on the study of real Museum Systems. Since each Museum System is different, each Component may have different characteristics. The definitions are designed to facilitate the accreditation process and are intended as a guideline or framework for further consultation about accreditation for Museum Systems. Within this framework Museum Systems have options and are free to decide which component definitions best represent their operations. Museum Systems should seek assistance with these choices from the Accreditation staff. Our experience suggests that components of one Museum System may change or evolve over time. For example, what was once a Satellite may turn into a Branch Facility/Museum over time. Therefore, Museum Systems are encouraged to reevaluate the component definitions at the time of each accreditation review. Museum Systems are also encouraged to reevaluate and select the organizational model that best suits their operations as well.

Definitions of Museum System Components:

- Associated Museum: A museum that is in effect autonomous and independently meets the definition of a museum and eligibility criteria for accreditation (see Appendix), but is part of a larger museum system. This type of museum is treated as an individual entity by the Accreditation Commission and only exists in Museum System Organizational Model A.
- Branch Museum/Facility: A museum/facility that essentially meets the definition of a museum (see Appendix), and is part

of a larger, holistically or highly integrated museum system. This type of facility is reviewed in the context of a Museum System and exists mostly in Museum System Organizational Model B.

- Centralized Services: Consolidated functions or services made available to all aspects of the museum system. This may include collection storage, facilities operations, financial management, human resources, development, conservation, exhibit design/ fabrication, security, administrative support, purchasing, public relations, legal counsel, membership, marketing, etc. These services may be operated out of one museum, a separate facility leased or owned specifically for that purpose, or different locations/ departments within the museum system; centralized services are not necessarily discrete. These functions and services are reviewed within the context of any museum system accreditation review.
- Headquarters Museum: The flagship museum of a Museum System, which meets the definition of a museum and eligibility criteria for accreditation (see Appendix). As appropriate, an applicant institution may opt to have the review apply to the Headquarters Museum only (as if it were a single-site museum), independent of the rest of the Museum System. However this choice should be made in consultation with the Accreditation Program staff. Subsequent accreditation reviews for this type of museum component may encompass the entire Museum System. Headquarters museums exist in Organizational Model B only.
- Satellite Facility: A Satellite Facility is a component of a Museum System that serves one or more museum functions. It is in a separate location from other museum components (i.e., it is not housed within another museum component). It is small (relative to the system) and has limited or no staffing. It is not self-sustaining and is dependent on the Museum System for services such as management, staffing, financial support, or collections. It is open to the public on a regular basis or by appointment. Satellite Facilities can exist in both Organizational Models A and B.
- Undeveloped Assets: Properties (structures or land), owned, or in the custody of a museum system but for various reasons are not in use for any current mission-related museum function. These sites are not interpreted and not open to the public. Undeveloped Assets can exist in both Organizational Models A and B.

Museum System Configurations

The Museum System configurations identified and defined below are based on the study of real Museum Systems. They describe two fundamentally different models of Museum Systems. These models are highly theoretical frameworks designed to facilitate the accreditation process. Museum Systems are free to elect which model best suits them and are encouraged to seek assistance with this choice from the Accreditation staff. It is acknowledged that Museum Systems are organic entities and change frequently. Therefore, just as Museum Systems are encouraged to reevaluate the component definitions at the time of each accreditation review, Museum Systems are also encouraged to reevaluate and select the model that best suits their operations as well at the time of each accreditation review. Note that these changes will affect the scope and approach of an accreditation review. Please see the attached Organizational Models A and B (Attachments 1 and 2) for a visual representation of the two models.

Organizational Model A: As a museum system grows, it may develop sub-units which are almost autonomous, in this model these are called Associated Museums. Very large Museum Systems may sometimes encounter challenges operating as one integrated unit, and it is natural that different parts of the system may be somewhat autonomous. However, the Associated Museum is never totally autonomous because it will always be under the aegis of the overarching Museum System for its governance and funding, for example. These functions and services may be classified as Centralized Services provided system-wide by the parent organization. Attachment 1 represents Organization Model A visually.

Organizational Model B: Some Museum Systems are characterized as holistically or highly integrated units. For example, a Headquarters Museum and/or one or more Branch Museums supported by various Centralized Services existing as an intimately integrated system. It is difficult to separately review the components of these Museum Systems because each component is inextricably related to the others. Attachment 2 visually represents Organization Model B. The Accreditation Program may recommend that these Museum Systems seek accreditation for the entire Museum System. However, for Museum Systems new to the Accreditation Program, this task may be too overwhelming. Therefore, a Museum System that fits into Model B, when it applies may apply for accreditation for its Headquarters Museum (as if it were a single-site museum). Subsequent accreditation reviews may encompass more or all of the components of the Museum System.

Program Policies Approach:

The review of a Museum System is more than a review of its individual parts. The review encompasses all aspects of the System to identify strengths and weaknesses, and their root causes. Strategic planning, resource allocation, and relationships between the parts and the whole are key elements in the review of a Museum System.

The Accreditation Commission has determined that a Museum System cannot omit sites from a review because they may have weaknesses. However, accreditation for certain sites may be delayed or on a separate time schedule in accordance with the frameworks outlined in Model A and Model B. Model A permits Associated Museums with their sub-units to pursue independent accreditation on independent time tables. Model B permits a Headquarters Museum to apply for independent accreditation for the institution's initial review only. Subsequent pursuit of accreditation for a Museum System under Model B must generally include all components of the Museum System. The Commission's philosophy on the approach is articulated as follows:

It should evaluate a museum system as a whole to understand the full picture of the entire museum operation.

- The approach should remain flexible and the final determination made by the accreditation staff and Commission will ensure that the accreditation review is equitable and comprehensive.
- A museum system may not omit sites from a review because it does not want the Commission to review a "weak" site.
- No system can be entirely perfect and at any given time, a particular site/part of a system could be less than ideal, but that if the site and system understands, acknowledges and has plans to address areas of weakness, the system can remain eligible for accreditation.

The Accreditation Commission is interested in determining an institution's awareness and recognition of problem areas and that a museum/System has plans and processes in place to address such areas at some future point in time. At the time of the next accreditation review, the Commission would expect to see significant progress in such areas, per the plans presented by the System during the previous review.

At the beginning of an accreditation review, a Museum System can determine how its sites are classified, based on the official program definitions. However, this determination is considered by the Accreditation Program staff and Accreditation Commission and, because of the complexity of museum systems, may be subject to change (in consultation with the System).

The Self-Study

All components of a Museum System must present some form of written documentation. This takes the form of one or more Self-Study Questionnaires. Program staff will work with the system to figure out the best way to present the information. The objective is to collect appropriate information from each site in a way that the reader can best understand the unique function of the site, its role/position within the System, and its relationship with the headquarters/centralized services and the other sites in advancing the organization's mission.

The Site Visit

The Commission recognizes that an on-site visit to a large, possibly geographically extensive, Museum System is logistically complex, costly, and time consuming for the Visiting Committee and the Museum System staff involved. Therefore, the Commission has determined the following guidelines for on-site visits (in both initial and subsequent reviews) for Museum Systems:

- The Headquarters Museum, or central administration if there is no Headquarters Museum, and all facilities providing centralized services must be included as part of the site visit.
- If a Museum System has seven or fewer Branch Museums/Facilities and they are located in relative proximity, all will be visited physically by the Visiting Committee.
- If the Museum System has more than seven Branch Museums/Facilities, a sampling of the Branch Museums/Facilities will be visited physically by the Visiting Committee. The Accreditation Program staff and the Accreditation Commission will determine which sites receive a visit and will notify the System in advance.
- It is at the discretion of the Accreditation Program staff and the Accreditation Commission whether site visits to Satellite Facilities and Undeveloped Assets will occur.
- For any sites not visited, the System may be asked to visually document the site for the Visiting Committee through videotape, additional photos, or other mechanism (e.g., Webcam, Web site, etc.). Also, staff from sites that do not receive a visit may be asked to convene and meet with the Visiting Committee at a centralized location. The Visiting Committee may also interview them over the phone.
- If a new Branch Museum/Facility has been added to the System since the time of the last review, it will be visited physically.
- The maximum size of a single Visiting Committee team is three individuals; the team may divide up to conduct the visit if necessary; a site may be reviewed by only one team member.
- A system can have multiple Visiting Committee teams if needed and the visit can occur over a non-continuous period of time (but in a limited time frame).
- For very complex visits, an Accreditation Commissioner or program staff member may be appointed liaison and/or

logistics coordinator for the visit to allow the Visiting Committee to focus on reviewing the Self-Study materials, preparing for the trip, and writing the narrative report.

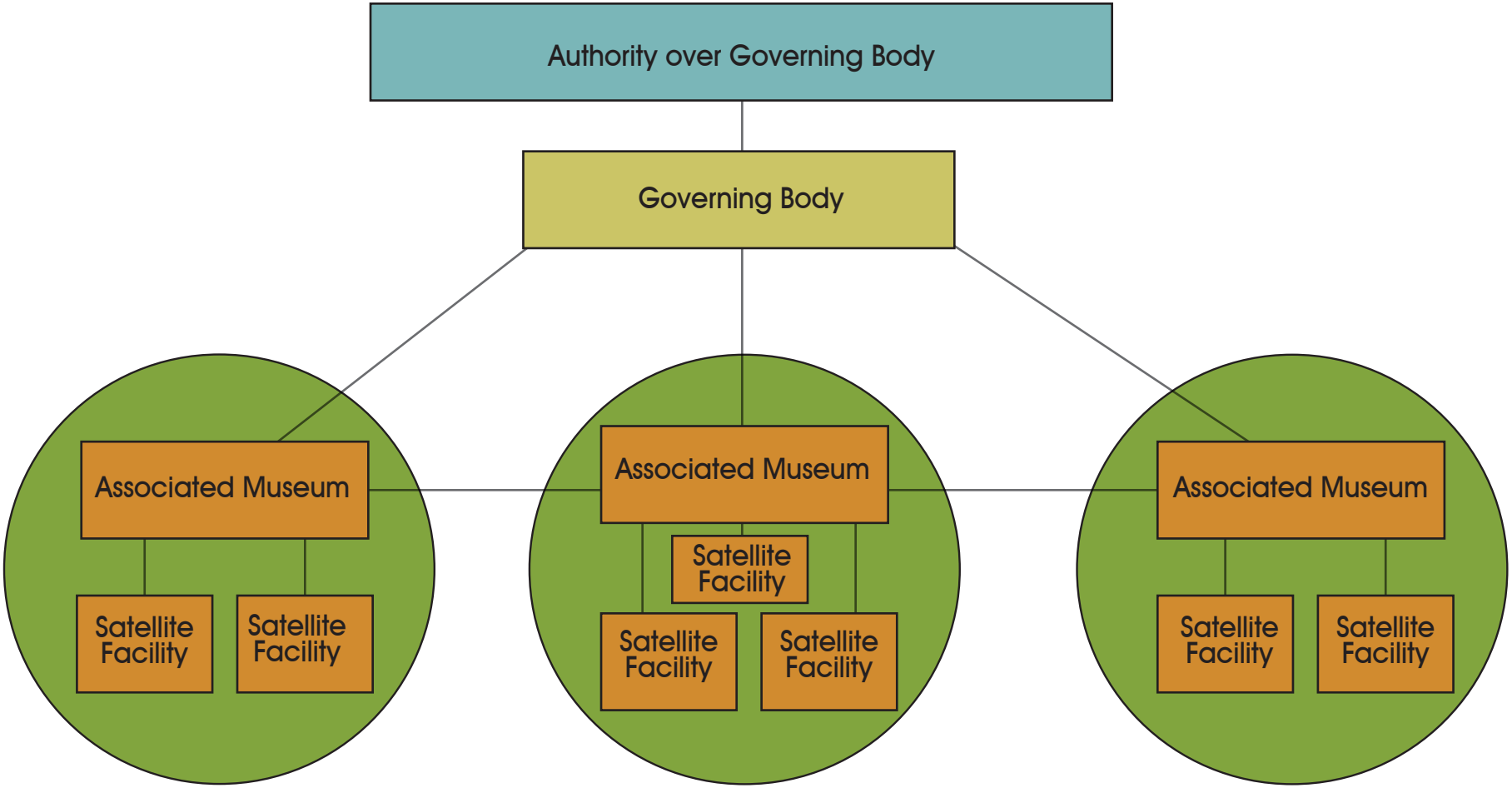
Appendix: Eligibility Criteria for Participating in the Accreditation Process

To participate in the American Association of Museums' Accreditation Program, a museum must:

- be a legally organized nonprofit institution or part of a nonprofit organization or government entity
- be essentially educational in nature
- have a formally stated and approved mission
- use and interpret objects and/or a site for the public presentation of regularly scheduled programs and exhibits
- have a formal and appropriate program of documentation, care, and use of collections and/or objects
- carry out the above functions primarily at a physical facility/site
- have been open to the public for at least two years
- be open to the public at least 1,000 hours a year
- have accessioned 80 percent of its permanent collection
- have at least one paid professional staff with museum knowledge and experience
- have a full-time director to whom authority is delegated for day-to-day operations
- have the financial resources sufficient to operate effectively
- demonstrate it meets the Characteristics of an Accreditable Museum

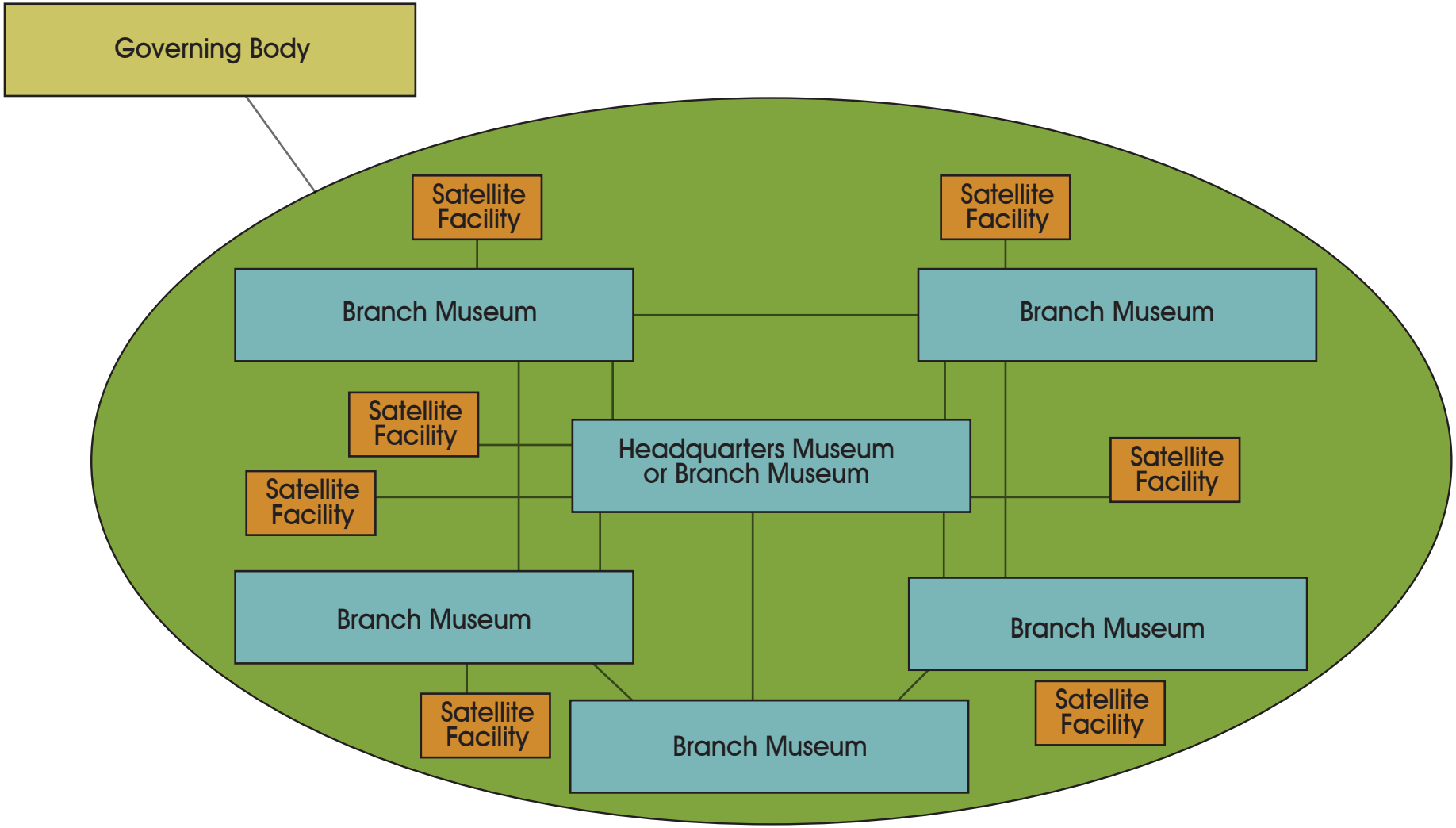
Museum System Model A

EACH ENCIRCLED AREA IS INDEPENDENTLY ACCREDITABLE



Museum System Model B

EACH ENCIRCLED AREA IS INDEPENDENTLY ACCREDITABLE



COMMISSION STATEMENTS ON BEST PRACTICES AND OTHER POLICIES

Statements on Best Practices

The Commission occasionally issues statements that codify best practices (commendable actions and philosophies that successfully solve problems, can be replicated, and demonstrate an awareness of standards). These statements are intended to:

- provide guidance to the field as a whole on appropriate ways to approach a given issue, based on the Commission's observations of the hundreds of high-performing museums in the Accreditation Program
- help museums in the Accreditation Program understand the Commission's thinking on issues that may arise in a museum's review

These statements generally address complex issues that museums may approach appropriately in a variety of ways, depending on their mission, values, discipline, and other individual circumstances. These statements are not standards, and do not set forth criteria that all accredited museums, or museums in general, are expected to meet. The Commission does feel that museums will benefit from considering how the issues discussed in this statement affect their operations and, as appropriate, using this information to make decisions regarding their own institutional practices, policies, and procedures.

- Commission Statement on Best Practice: on Unlawful Appropriation of Objects During the Nazi-Era
- Commission Statement on Best Practice: Loaning Collections to Non-Museum Entities

Other Policies

- Considerations for AAM Accredited Museums Facing Retrenchment or Downsizing (reissued 11/08 with updated resource list)
- Policy on Management Agreements and Memorandum of Understanding
- Policy on Statements of Support from Parent Organizations (revised 3/10)
- Report on Museum Systems and the AAM Accreditation Program
- Statement on Acquisition, Documentation, and Disclosure of Sensitive Cultural Property
- Additional information for museums with parent organizations and/or a remote governance structure

EXPANSIONISM...SUCCESSES AND FAILURES BY MARTHA MORRIS

Published in "Museum News" July/August 2004

A recent Google search resulted in 1,710,000 entries for "new museum construction"—signs of a trend that offers wide-ranging possibilities for museums and their communities. New construction creates dramatic new spaces for programs, collections, and exhibitions. Boards and community leaders embrace new buildings as a means of meeting mission, increasing support, and improving the local and regional economy. These projects are highly visible to the public and probably represent the largest investment of funds, time, and energy a museum can make.

Does it pay off?
Which factors drive success or failure?

The public is watching closely, scrutinizing projects that have succeeded as well as those that have faltered. In the past couple of years, museum building projects have been cancelled or scaled back, victims of the post-Sept. 11 tourism slump and the recent economic recession. Plans to expand New York's Whitney Museum of American Art and the Los Angeles County Museum of Art, for example, have been shelved or dramatically cut back in scope. Though it opened less than three years ago, the new Bellevue Art Museum in Washington closed its doors in the fall of 2003. Washington, D.C.'s new City Museum, a $25-million project, has struggled with low attendance since opening in May 2003. These events are sobering and raise many questions about the feasibility of museum building ambitions.On the other hand, several museum building programs are underway, ranging from major new facilities to dramatic expansions and dramatic renovations. A number of museums—from D.C.'s Spy Museum to Philadelphia's Constitution Center to San Francisco's Asian Art Museum—have recently opened or reopened to record attendance. Art museums seem to be the fastest-growing segment, participating in what the October 2001 issue of Art News characterized as a multibillion-dollar building boom that reflects the need to reinvent the museum as a center of populist activity. But all museums are affected by this boom. As reported in AAM's 2003 Museum Financial Information, 13.2 percent of the 806 museums surveyed are constructing new buildings while 12 percent are expanding and 28 percent are renovating facilities; most of the expansion projects are in children's museums, zoos, nature centers, and science museums.

"Architecture and design today are as significant to a large number of museum visitors as collections and exhibitions were in the past," says Neil Kotler, who writes and lectures on museum marketing. "Many visitors crave unusual experiences, and remarkable architecture."

But how can museums ensure that they have the resources to build these new facilities?

Economic Realities

Museums are facing the impact of dramatic cuts in government funding and a slowdown in contributions. A November 2003 Chronicle of Philanthropy study revealed that charitable giving declined in 2002 for the first time in 12 years. Many charities are revising their strategies now to brace for a continuing downturn. State funding also has dried up, anywhere from 10 to 60 percent, according to a July/August 2003 Museum News cover story. Despite signs of economic improvement, it will take several years before state coffers see significant increases.

Still, a 2002 survey of the Association of Art Museum Directors noted that despite setbacks, a majority of art museums are going forward with their building projects, while others planned to change the timeframe or the scope. For example, the July 2003 issue of Art Newspaper reported that the Los Angeles County Museum of Art's ambitious $300-million, 700,000-square-foot expansion, designed by Rem Koolhaas, was scrapped last spring due to a slowdown in fund raising and a failed local bond initiative. But thanks to detailed early strategic and program planning and the generosity of trustee-philanthropist Eli Broad, the museum now will go forward with a phased program, beginning with a new 70,000-square-foot wing.

In the Washington, D.C., area, 20 new museum building projects are about to open or are in the planning stages. These projects—which include the Smithsonian's National Museum of the American Indian (NMAI), which opens in September, and its American Art Museum and National Portrait Gallery, scheduled to open July 4, 2006—are expected to cost more than $2 billion, yet there has been a noticeable drop in fund-raising success, says the Washington Post (July 10, 2003). The Corcoran Gallery of Art is slated for the first Frank Gehry building in the city, one that should be a major attraction. Yet, as reported in the December 2003 Washingtonian magazine, fund raising has been frustratingly slow. Some projects have moved ahead even without full funding in hand. When the Smithsonian's National Air and Space Museum opened its stunning new and largely

privately funded Udvar-Hazy Center in Dulles, Va., in December 2003, it still lacked about a third of the $311-million budget. Museum staff hope that future fund raising will be more successful as people respond to the excitement surrounding this long-awaited new facility.

In reality it is difficult to drop a project in which you've invested considerable time and money and that has generated the support of community members, donors, legislators, staff, and other stakeholders over a number of years. For example, construction of Cleveland's $85-million Crawford Museum of Transportation was postponed in 2003 due to a serious slowdown in fund raising and complications over use of the proposed lakefront site. But now a new site has been chosen and the museum is scaling back its designs, setting a "goal that is obtainable in this kind of climate," says Tamera Brown, director of development and external affairs. Much of the completed exhibition design work, she says, can be salvaged for the new site and building, which should open in 2007. Three years after opening its 142,000-square-foot Santiago Calatrava wing to record attendance, the Milwaukee Art Museum is facing financial problems—largely long-term debt related to construction costs that nearly tripled early estimates. According to CEO David Gordon, this year's operating expenses may show a small deficit due to lower than expected attendance. But the long-term debt recently was refinanced with low-interest bonds, and fund raising continues. Despite higher than expected construction costs, the project is considered a bargain, in comparison to other art museums of its type. Says Gordon: "Each museum building project is special. Architecture is the most public of the arts, and one should aim for the architecturally splendid." Local news articles describe the new museum as a popular attraction that has generated much local pride.

Washington State's Bellevue Art Museum opened a state-of-the art, 36,000-square-foot, $23-million facility designed by architect Steven Holl in 2001. Two years later, the museum had let most of the staff go and closed its doors, plagued by deficits created by overly optimistic income projections, the lack of an endowment, and a mission focused on cutting-edge contemporary art that was not in tune with community interests. This dramatic move led to a period of reevaluation and an opportunity for a second chance. Interim Managing Director Mark Haley has led a comprehensive effort to reach out and listen to stakeholders in the community. The board has reorganized itself and is developing a new strategic plan, and raising funds for a grand rebirth of a museum devoted to craft and design planned for fall 2004. In reflecting on the experience with the Holl building, Board Chair Rick Collett notes that the new facility is considerably larger and different than the prior location and that estimated income from the museum's art school was unrealistic. He calls their current effort "a steep mountain to climb" but believes it will result in a new business model, based on a new community-supported vision.

Building for the Future

Which factors lead to successful building programs? According to information from my 2002 survey of 30 art, history, and science museums engaged in building programs as well as follow-up interviews with museum directors, the best programs have a clear link to organizational strategic planning, support the museum's vision, are keenly aware of the needs of their communities, and navigate the many challenges in funding and implementation. Successful characteristics include the development of master plans, feasibility studies and business plans, adept use of consultants, and intensive involvement of stakeholders throughout the process.

Strategic planning is a critical part of setting the framework and rationale for a building program. Construction projects are driven by several factors: outdated facilities, inaccessible locations, need for improved collection showcases and/or amenities that will accommodate varied and larger audiences. Strategic plans support the long-term comprehensive vision that in many cases is realized through a building program. Planning timelines usually last at least a year or more and include development of an intellectual program, collecting plans, estimates of space needs and fund-raising feasibility, and architectural competitions.

Program planning is probably the most important phase of a building project, and museums must be clear about what their needs are well in advance of design and construction. Priorities cited by most of the surveyed museums were spaces that would best serve the visitor experience: orientation space, improved way finding and intellectual coherence, retail areas, interactive or immersion experiences, landscaping and site improvements, classrooms, and the ability to showcase more of the permanent collection and provide for changing exhibitions. In many cases collections storage and other behind-the-scenes functions had been moved to off-site locations.

Dan Monroe, president of the Peabody Essex Museum in Salem, Mass., recently presided over a major building program, comprised of renovations of historic structures, construction of new collections storage and installations, and a new $84-million, 113,000-square-foot wing designed by Moshe Safdie. The new Peabody Essex opened in June 2003 to much popular acclaim. "Museums often

spend insufficient time and care developing the program plan," which should involve all department heads, senior staff, and the board's building committee, says Monroe. "All assumptions regarding program needs, space requirements and adjacencies, and human and technical requirements should be explicitly listed [and then] tested and re-tested for validity, with the help of outside experts, including experienced museum professionals. . . . The well-done program plan will simplify and guide architect selection, design, and construction. It will also help control costs by reducing [the need for] change orders."

Architect selection is critical. Often museums will seek a "signature" architect to ensure that the project attracts both funding and audiences. This process can be extremely complex, involving review committees, design competitions, and considerable expense. The challenge museum planners face when working with a radical new design concept and a world-famous architect cannot be understated. No matter who designs your building, a strong collaboration between the architect and museum should be expected. The Denver Art Museum (DAM) currently is engaged in the construction of a 140,000-square-foot Daniel Libeskind wing, a design characterized by the Sept. 15, 2003, issue of the New Yorker as "an astonishingly beautiful explosion." According to Dan Kohl, DAM's director of museum design, Libeskind was very open to staff's ideas for the design.

Cost estimating often was cited as a red flag by the surveyed museums. Some institutions hire construction firms to add greater levels of detail as well as provide advice during the cost-estimating phase. Tied closely to funding, actual construction can take anywhere from three to five years, making cash flow a major concern. How do you plan for unexpected costs such as asbestos removal, preserving archeological artifacts found during an excavation, the death of a key funder, or a major tourist downturn? Sometimes museums, in their excitement about a project, move forward before tying operations costs to design decisions. Walter Crimm, vice president of Ewing Cole architectural firm in Philadelphia, has worked with several museums on large renovation programs. "Project scope and project quality determine costs," he says, "both in terms of the first costs of construction and the long-term operational costs. The quality of spaces, finishes, and building systems have an impact on . . . maintenance and utility costs. Since few projects have the budget to completely achieve both full scope and quality, it is critical to have a process that balances competing interests and supports informed decision-making by the museum."

Funding sources: Successfully funded building projects usually draw on a mixture of sources, including lead gifts from board members, matching grants from foundations, state and local government grants, bond issues, corporate sponsorships, membership solicitations, and (in some cases) retail-development partnerships. Museums with an eye on long-term viability seek funds for capital expenses, start-up staff, and marketing, but also carefully estimate needs for ongoing operations, often provided by increasing their endowments. According to Director Dennis Fiori, for example, the Maryland Historical Society's recent renovation and expansion raised $30 million, one-third of which was earmarked for endowment.

Although state funding cuts have had an impact on many museums and cultural organizations, some projects remain supported by public funds. The John and Mable Ringling Museum of Art in Sarasota, Fla., is in the midst of a 10-year, $76-million renovation and expansion program. Executive Director John Wetenhall attributes that to the Ringling's status as "official state art museum," under the administration of Florida State University. The state legislature has provided one-to-one matches for new building programs as well as matching endowment grants. "This gives comfort to our major donors," says Wetenhall. On the other hand, while state funding supported the construction of the new Bob Bullock State History Museum in Austin, Tex. (opened in 2001), the institution is expected to manage operations based on earned income and private contributions, says Director Lynn Denton.

Post-opening budgets are of real concern. To cushion the institution from unexpected downturns in attendance, tourism, or traditional funding, museums are considering new approaches. Gail Lord is president of Lord Cultural Resources, a Toronto-based consulting firm that has worked on hundreds of museum projects. The cost of additional square footage often surpasses earned revenue and attendance, she says: "In the enthusiasm to build, the last thing that people want to hear is that they require increased subsidies to cover the gap." Many museums have created feasibility studies that help estimate future attendance and operating costs. At Philadelphia's new Constitution Center, a 160,000-square-foot, $123-million facility that opened in July 2003, audience reactions have been positive and attendance has been on target. Operational funding in this start-up phase will be approximately 50-percent earned income, 45-percent contributions, and 5-percent endowment, with endowment increasing over time, says Executive Vice President Laura Linton: "You just don't know until you open your doors" how well you are going to do.

There are advantages to seeking new sources of earned income beyond the traditional attendance and retail activities. Spencer Crew, executive director of the Underground Railroad and Freedom Center in Cincinnati, opening in August 2004, plans to generate revenue by offering mission-based diversity training to other organizations and groups.

Mixed-use development is another creative way of financing a building program and establishing long-term stability. In May 2003, the Seattle Art Museum announced a development agreement with its neighbor Washington Mutual Bank to build contiguous facilities in the downtown area. This will allow the art museum to expand into a total of 300,000 square feet over a period of time, while the bank gains additional office space and parking facilities.

Project management: Some of the surveyed museums developed steering committees comprised of board and staff to monitor activities and ensure adherence to program plans. Other museums, those without the requisite in-house skills, hire professional project managers to oversee the many details associated with construction and renovation or to serve as the museum's representative. Museums also use consultants in the planning phases or for estimating, design, staffing, market research, post-opening evaluation, or fund raising. "Checks and balances are essential to control costs and avoid surprises," says Dan Monroe. "After selecting an architect, a museum should select a general contractor. The general contractor will provide a check for the architect on cost estimates and constructability. Additionally, independent consultants should review design documents for consistency and completeness." Monroe also recommends that independent firms review lighting, mechanical, and electrical plans and specifications.

Deciding whether to close or stay open during building and renovation projects is critical. Museums must balance ongoing public service against prolonged projects, additional costs, and inconvenience to public and staff. Some institutions—the Museum of Modern Art, for example—have moved to alternate spaces, where they run scaled-back programs and stay in the public eye. Others have closed completely so that staff could focus on planning for the new facility. Of course, closing may cut the steady stream of earned income from admissions and retail operations and perhaps lead to staff layoffs.

San Francisco's Asian Art Museum worked with staff during the 18 months it closed during the construction of a new building, which opened in spring 2003. Staff were concerned about layoffs, the lack of public programs, and the uncertainty of life in a new space. Valerie Pechenik, director of human resources, says the museum took a proactive approach to dealing with morale issues. A highly visible "wellness program" for the 80 staff members included such perks as massage therapy, yoga, and language classes. A popular peer education program allowed staff to share their skills with each other. These activities lead to enhanced team-building, which Pechenik believes was the "most important thing" ensuring survival during this phase. In the new space, efforts to support the staff have resulted in minimal turnover.

Good communication is crucial; it is important to keep board, staff, funders, and public well informed throughout a new building program. Both the Air and Space Museum and the Denver Art Museum have used the Internet quite effectively. The Web can highlight progress via project timelines, live Webcams, or ongoing appeals for the capital campaign. Many museums have added marketing and public relations staff to ensure that their messages are clear, consistent, and compelling.

Moving Forward

Making the monumental decision to go forward with a building program requires considerable thought and study. Milwaukee's David Gordon provides a cautionary note. "Everybody has a great idea for a museum," he says. But the "overbuilding of new museums can lead to the danger of excess capacity."

Perhaps it is cheaper to renovate or expand than to build at a new location. Or perhaps the museum can provide new outreach programs through the Internet rather than bricks and mortar? Marketing studies to forecast visitation, select location, or determine fund-raising feasibility are an important factor in the decision mix. Miami's Museum of Science & Planetarium researched the economic impact of a new science center project as part of the city's urban redevelopment and cultural tourism initiative. It is one of several new projects around the country that are taking advantage of the Smithsonian Affiliations program as a way to increase programming and attract funding. Affiliates can borrow Smithsonian collections on a long-term basis and collaborate on programming.

The challenge of decision-making continues throughout the project. Because so much is at stake there will be countless opinions on every aspect. Monroe emphasizes that "managing staff and board engagement in all key aspects of a major facilities project is critical to maintaining unity, focus, and overall success."

Spencer Crew notes that a new building program "needs a great deal of flexibility in considering what's possible. The process is evolutionary." Being open to a variety of ideas often leads to the most successful programs. Laura Linton emphasizes the importance of staying completely committed to your project and having the will to overcome inevitable roadblocks.

Less often considered but of real consequence is the impact on staff. Few museum staff participate in more than one building project during their professional lifetimes. Staff are often not experienced in overseeing and living through lengthy and disruptive projects. Doing appropriate research about the process and learning about the experiences of colleagues can make a major difference.

As many museums move forward with their plans for expansion and renovation, they will be looking for solid data on construction costs, marketing strategies, economic impact, visitor attendance, and funder willingness to support their efforts. Extensive efforts are needed to ensure that this infinformation is collected and made available to the field.

Martha Morris is associate professor of museum studies, George Washington University, and former deputy director, National Museum of American History, Smithsonian Institution, Washington, D.C.

Geotechnical Investigation

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SUMMARY

1. The subsurface soil profile observed in the borings drilled during this study generally consists of fill overlying silt with varied amounts of sand to silty sand. The silt/sand is underlain by silty gravel with sand to the maximum depth investigated, approximately 29 feet. The fill depth varies from approximately 4 to 13 feet in borings B-1, B-2, and B-4. The project area is an existing parking lot and the pavement section observed in the borings consists of approximately 2 ½ to 4 inches of asphaltic concrete underlain by 3 ½ to 4 inches of base course. Practical auger refusal was encountered on dense gravel within each of the borings at depths ranging from approximately 19 to 29 feet below the existing grade.

2. Groundwater was not encountered to the maximum depth investigated, approximately 29 feet.

3. The on-site soils at the site are not suitable to support the proposed construction in their existing condition. The site is suitable for the proposed construction provided recommendations within this report are followed.

4. Laboratory testing indicates the site grading fill in borings B-1 and B-2 is poorly compacted and not suitable to support the proposed construction. Laboratory testing indicates the site grading fill observed in boring B-4 is moderately well compacted and suitable to support the proposed construction. The extent of poorly or well compacted fill was not determined during this study.

5. Laboratory testing also indicates the underlying silt and silty sand are moderately moisture sensitive (collapsible) when wetted under a constant pressure of 1,000 psf. The collapsible soil extends to depths of approximately 13 (Boring B-1) to 18 feet (Boring B-3) below the existing grade. The collapsible soil is underlain by a dense to very dense gravel. The approximate depth to the bottom of the collapsible soil at each boring location is shown on the site plan, Figure 2.

6. The proposed museum may be supported on conventional spread footings bearing on properly compacted structural fill underlain by a properly prepared subgrade as recommended in the Subgrade Preparation section of this report. We recommend the full depth (13 to 18 feet below the existing grade) of the underlying moisture sensitive soils should be removed from beneath the proposed building area. The overexcavated building pad area should extend at least 10 feet beyond the perimeter of the proposed building pad. The removed soil may be re-used as site grading fill beneath the building during construction of the building pad. Details for grading recommendations are provided within this report.

7. A zone of imported granular, structural fill or suitable on-site granular soil is recommended beneath footings as provided in the foundations section of this report. Allowable bearing pressures are also provided in the foundations section of this report.

8. The on-site fine grained soils (silt), free of organics and debris, may be used as site grading fill (including beneath buildings), wall backfill, and utility trench backfill. The on-site granular fill encountered in Boring B-4 and on-site silty sand are also suitable for use as structural fill beneath foundations. The on-site asphalt may also be rotomilled/mixed with the base course and reused as wall backfill, utility trench backfill, and site grading fill.

9. Recommendations for site grading, slabs, foundations, pavement, and drainage are included in this report.

10. Information presented in this summary should not be used independent of that contained within the body of the report.

SCOPE OF WORK

This report presents the results of a geotechnical investigation for the proposed SUU Museum to be located at the northwest corner of Center Street and 300 West Streets in Cedar City, Utah as shown on Figure 1. This report presents the subsurface conditions encountered, laboratory test results, and recommendations for geotechnical aspects of the project. This report was prepared in general accordance with our proposal dated June 15, 2010.
Field exploration was conducted to obtain information on the subsurface conditions and to obtain samples for laboratory testing. Samples obtained during the field investigation were tested in the laboratory to determine physical and engineering characteristics of the on-site soil. Results of the field exploration and laboratory tests were analyzed to develop recommendations for the proposed construction.

This report has been prepared to summarize the data obtained during the study and to present our conclusions and recommendations based on the proposed construction and subsurface conditions encountered. Design parameters and a discussion of geotechnical engineering considerations related to construction are included in the report. We understand this report will be used by the design consultant as a part of the programming phase. We anticipate additional study will be conducted as a part of a final report.

SITE CONDITIONS

The subject site is currently the location of an asphaltic concrete paved parking lot, which facilitates parking for the Southern Utah University in Cedar City, Utah. The site was the previous location of a large building as shown on Figure 1 a. There is a swimming pool/recreation center and a gravel surface lot located to the north, 300 West Street is to the east, Center Street is to the south and an additional parking lot and a gravel surface lot are tho the west. The SUU Sorenson Physical Education building is located further to the west. The site currently slopes down gently from the southeast to the northwest.

SUBSURFACE SOIL CONDITIONS

On September 7, 2010, an engineer from AGEC visited the site and observed the drilling of 4 borings at the approximate locations shown on Figure 2. The borings were drilled with a truck mounted drill rig equipped with 8-inch diameter hollow-stem augers.

The subsurface soil profile observed in the borings drilled during this study generally consists of previously placed fill overlying silt with varied amounts of sand to silty sand. The silt/sand is underlain by silty gravel with sand to the maximum depth investigated, approximately 29 feet. The fill depth varied from approximately 4 to 13 feet in borings B-1, B-2, and B-4. The project area is an existing parking lot and the pavement section consists of approximately 2 ½ to 4 inches of asphaltic concrete underlain by 3 ½ to 4 inches of base course. Practical auger refusal on dense gravels was encountered within each of the borings at depths ranging from approximately 19 to 29 feet below the existing grade.

Laboratory testing indicates the underlying silt and silty sand are moisture sensitive and extend to approximately 13 to 18 feet below the existing grade. The approximate depth to the bottom of the collapsible soil at each boring location is shown on the site plan, Figure 2. Practical auger refusal was encountered within each of the borings at depths ranging from approximately 19 to 29 feet below the existing grade.

Descriptions of the soil types and the asphaltic concrete pavement encountered follow.
Asphaltic concrete - The asphaltic concrete appears in good condition and is black in color.
Road base - The road base is approximately 3 ½ to 4 inches thick, well compacted, moist, and light brown in color.
Fill - The fill contains silty sand to sandy lean clay to silty clayey gravel with sand. It also contains varied amounts of gravel and is poorly compacted (borings B-1 and B-2) moderately to well (boring B-4) compacted, dry to moist, fine-grained, and brown in color.

Laboratory tests conducted on samples of the fill indicate in-place moisture contents ranging from 7 to 10 percent, in-place dry densities ranging from 102 to 131 pounds per cubic foot (pcf), a gravel content (percent retained on the No.4 sieve) ranging from 9 to 31 percent and fines contents (percent passing the No. 200 sieve) ranging from 30 to 60 percent. Moisture-density relationships (Modified Proctors) conducted on samples of the fill indicate optimum moisture contents ranging from 5.5 to 7.0 percent with maximum dry densities ranging from 129.5 to 136.5 pcf.

Silt - The silt contains varied amounts of sand and occasional gravel. It is soft to medium stiff, dry to moist, porous to non-porous, and brown in color.

Laboratory tests conducted on samples of the silt indicate in-place moisture contents ranging from 11 to 18 percent, in-place dry densities ranging from 90 to 108 pcf, and fines contents ranging from 65 to 82 percent. A water soluble sulfate test conducted on a sample of the silt indicates a water soluble sulfate concentration of 100 parts per million (ppm).

One-dimensional consolidation/collapse tests conducted on samples of the silt indicate the material is moderately moisture sensitive (collapsible) when wetted under a constant pressure of approximately 1,000 psf and moderately to highly compressible under additional loading. Collapse potentials ranging from approximately 2 to 4 percent were measured.

Silty sand - The silty sand is loose to medium dense, dry to moist, porous to nonporous and brown in color.

Laboratory tests conducted on samples of the silty sand indicate in-place moisture contents ranging from 4 to 11 percent, in-place dry densities ranging from 103 to 117 pcf, and fines contents ranging from 40 to 44 percent.

Several one-dimensional consolidation/collapse tests conducted on samples of the silty sand indicate the material is moderately moisture sensitive (collapsible) when wetted under a constant pressure of approximately 1,000 psf and moderately compressible under additional loading. Collapse potentials ranging from approximately 1 ¼ to 2 ¾ percent were measured.

Silty gravel with sand - The silty gravel with sand contains boulders near the bottom of each of the borings. It is medium to very dense, moist, contains sub-rounded gravel, and light brown in color.

Laboratory tests conducted on samples of the silty gravel with sand indicates in-place moisture contents ranging from 2 to 7 percent, an in-place dry density of 119 pcf, and fines contents ranging from 11 to 26 percent. An Atterberg Limits Test conduct on a sample of the gravel indicates a Liquid Limit of 14 percent and a Plasticity Index of 1 percent.

The Logs of Exploratory Borings are shown on Figure 3. The Legend and Notes of Exploratory Borings are shown on Figure 4. The laboratory test results are also shown on Figure 3 and in The Summary of Laboratory Test Results, Table 1. The consolidation/collapse test results are shown graphically on Figures 5-12. Gradation Test Results are shown on Figure 13 and the Moisture-density relationships are shown graphically on Figures 14 and 15.

SUBSURFACE WATER

Groundwater was not encountered within the borings drilled to the maximum depth investigated, approximately 29 feet. Fluctuations in the groundwater level may occur over time. An evaluation of such fluctuations is beyond the scope of this report.

PROPOSED CONSTRUCTION

We understand that it is proposed to construct a museum on the subject site with a footprint of approximately 28,000 square feet. Based on the existing topography and discussion with the architect, we understand the back portion of the lower level will be constructed on the order of 8 feet below the existing grade while the front portion of the structure will be constructed near the existing grade to "daylight" out to the north. Based on our experience in the area, we anticipate the structure will be constructed utilizing structural reinforced concrete and masonry and/or steel framing. Based on proposed construction, we anticipate wall loads up to approximately 6 kips per linear foot and column loads up to approximately 200 kips.

We also understand that paved areas will also be necessary to facilitate both "light duty" parking, a bus lane, and a" heavy duty" loading dock area. We understand the heavy duty areas may utilize rigid concrete pavement while the light duty areas will likely utilize flexible asphaltic concrete pavement.

If the building loads, traffic conditions, or proposed construction are significantly different than what is described above, we should be notified to reevaluate our recommendations.

RECOMMENDATIONS

Based on our experience in the area, the subsurface conditions observed, and the laboratory test results, the following recommendations are provided for the proposed construction.

A. Site Grading

A grading plan was not available at the time this report was prepared. Based on discussion with the architect, we anticipate the building pad will be graded by cutting to the south up to approximately 8 feet. When the grading plan is available, AGEC should review it to verify our recommendations are consistent with the proposed grading.

1 . Subgrade Preparation

General: Prior to conducting site grading, the existing asphaltic concrete and base course should be removed to the full depth. In addition, the existing poorly compacted fill encountered in borings B-1 and B-2 should also be removed the full depth (approximately 4 feet). Our analysis indicates the site grading fill in boring B-4 is well compacted. If there is a desire for the well compacted material to be left in place, the extent and compaction of this fill should be verified in the field through observation of test pits by a geotechnical engineer from AGEC and through additional field exploration and in-place testing. If the delineation process is not conducted, the fill throughout the building area should be removed its full depth. In addition, loose or disturbed soils should also be removed.

Subsequent to subgrade preparation as described above and prior to placing additional site grading fill, the exposed subgrade should be scarified to a depth of at least 8 inches, properly moisture conditioned, and compacted to meet the recommendations in the Compaction section of this report. Additional overexcavation of moisture sensitive soils below pavement and building areas is recommended as described below.

Building pad: Subsequent to removal of asphaltic concrete pavement section and removal of the poorly compacted fill and prior to placing additional site grading fill or concrete, the building pad area should be overexcavated to remove the full depth of the potentially moisture sensitive (collapsible) soils (approximately 13 to 18 feet below the existing grade) from below the proposed building pad area. The overexcavation below the building pad should extend at least 10 feet beyond the perimeter of the proposed building. Consideration should be given to extending the overexcavation to include surrounding flatwork and utility pad areas.

The depth of overexcavation may be reduced at the discretion of the owner provided the risk of future foundation/slab movement is acceptable. The following table may be referenced in assessing the risk of future movement to the building if a portion of the underlying collapsible soils are left in place.

Thickness of remaining potential collapsible soil (feet)	Estimated Additional Potential Future Foundation/Slab Settlement (inches) *
15	5-6
12	3½-4½
8	2-3
4	½-1
0	< ½

• In addition to the estimated settlement provided in the Foundations section of the report if the underlying soils are wetted following construction.

Subsequent to overexcavation and prior to placing fill, the exposed subgrade should be scarified to a depth of at least 8 inches, properly moisture conditioned, and compacted to meet the recommendations in the Compaction section of this report. The removed soil may be replaced in properly moisture conditioned and compacted lifts, as described in the Compaction section of this report.

PavementlFlatwork areas: If potentially moisture sensitive (collapsible) soils are left in place below pavement/flatwork areas, the preceding table may be referenced to estimate the potential for future settlement of the pavement and adjacent improvements.

As a minimum, we recommend paved/flatwork areas be prepared to provide on the order of 2 to 4 feet of properly compacted fine grained soil. This 4 foot layer is intended to provide a low permeable barrier to reduce potential infiltration of surface water to the underlying collapsible soils.
If the underlying collapsible soils are wetted, settlement to the pavement and adjacent improvements will likely occur as provided in the table above. Subsequent to overexcavation and prior to replacing fill, the exposed subgrade should be scarified to a depth of at least 8 inches, properly moisture conditioned, and compacted to meet the recommendations in the Compaction section of this report.

2. Excavation/Earthwork

Excavation of the on-site silt and silty sand may be excavated utilizing conventional excavation equipment. Excavations which may extend into the underlying dense to very dense gravel will likely require the use of a large track mounted excavator.

3. Compaction

Compaction of fill materials placed at the site should equal or exceed the following percentages when compared to the maximum dry density as determined by ASTM D-1557.

Area	Minimum Percent Compaction
Subgrade (on-site)	90
Subgrade (city improvements)	95
Footings/foundations/building pad	95
Retaining wall backfill	95
Slabs/roadways/parking grading fill	95
Roadways/parking base course	95
Landscape areas	85

Fill should be placed in lifts which do not exceed the capability of the equipment used. Generally, 6 to 8-inch loose lifts are adequate for heavy rubber tire or sheeps-foot compaction equipment. Lift thicknesses should be reduced to 4 inches for hand compaction equipment. Fill placed at the site should be tested to verify proper compaction. Fill should be moisture conditioned to within 2 percentage points of the optimum moisture content prior to placement.

4. Materials

The on-site fine grained soils (silt), free of organics and debris, may be used as site grading fill (including beneath buildings). wall backfill, and utility trench backfill. The on-site granular fill (encountered in Boring B-4) and on-site silty sand are also suitable for use as structural fill beneath foundations. The on-site asphalt may also be roto-milled/mixed with the base course and reused as site grading fill, wall backfill, and utility trench backfill.

Varying thicknesses of structural fill are recommended below foundations depending on the loading condition. These structural fill depths are provided in the Foundation section of this report.

Imported fill should be granular, non-expansive and meet the following recommendations.

Area	Fill Type	Recommendations
Footings/pad	Structural fill	**-200** <35%, **LL** <30% Maximum size: 4 inches
Under slab	Base course	**-200** <10% Maximum size: 1 inch
Parking/Roadway	Granular fill	**-200** < 50%, **LL** < 30% Maximum Size: 4 inches

-200 = Percent Passing the No. 200 Sieve
LL = Liquid Limit

5. Slopes

Fill slopes constructed with the on-site soil may be constructed as steep as 2: 1 (Horizontal:Vertical) provided the fill is properly compacted. Fill slopes should be constructed by overbuilding the slope and cutting it to the desired grade to assure a compacted slope face. The slopes will be highly susceptible to erosion. Slopes should be protected from erosion with aggregate riprap or manufactured erosion control matts.

Temporary cuts slopes necessary during pad excavation should be excavated according to OSHA standards to maintain a safe excavation. OSHA soil class B should be referenced during excavation.

6. Drainage

Due to the presence of potentially moisture sensitive soils, drainage recommendations within this report should be strictly followed to reduce the potential for future movement of the building and site improvements. The following recommendations are provided:

• Positive site drainage should be maintained through the course of construction and during the life of the facility. Positive drainage of the surface water away from the building must be maintained. In no case should water be allowed to pond adjacent to foundations.

• The building pad should be graded so that a minimum slope of 6 inches in the first 10 feet from the building is provided. The use of hard surfaces, such as sidewalks, which slope away from the building may also be used.

• Landscaping which requires minimal watering should be implemented adjacent the structure.

• We also recommend that rain gutters and downspouts which discharge away from foundations be used. Ideally, the downspouts would be piped horizontally and discharge to a storm drain system or to a down gradient off site area.

B. Foundations

1 . Bearing Material and Foundation Type

The proposed museum may be supported on conventional spread footings bearing on a zone of properly compacted structural fill underlain by a properly prepared subgrade as recommended in the Subgrade Preparation section of this report. We recommend the underlying moisture sensitive (collapsible) soils be removed the full depth (approximately 13 to 18 feet below the existing grade) from beneath the proposed building area. The overexcavated area should extend 10 feet beyond the perimeter of the proposed building pad. The removed soil which consists of silt and sandy soil may be replaced in properly moisture conditioned and compacted lifts.

The following table provides minimum recommended thicknesses of imported granular, structural fill or on-site granular structural fill necessary beneath foundations. The structural fill is intended to reduce the potential settlement to within tolerable limits due to the slightly compressible nature of the recompacted on-site silt and sand soil.

Load "P"	Recommended Thickness of Structural Fill (feet)
$P \leq 2$ klf	0
$2 < P \leq 4$ klf	1
$4 < P \leq 6$ klf	1
$6 < P \leq 8$ klf	2
$P \leq 50$ kips	1
$50 < P \leq 100$ kips	1
$100 < P \leq 150$ kips	2
$150 < P \leq 200$ kips	3
$200 < P \leq 250$ kips	4

The structural fill thickness is recommended in addition to the overexcavation and recompaction of the collapsible sand and silt soils. Consideration may be given to importing or using on-site granular fill as the upper portion of the replacement fill to satisfy this recommendation.

2. Bearing Pressure

Footings bearing on properly compacted structural fill may be designed for the following allowable bearing pressures.

Footing Width "B" (feet)	Allowable Bearing Pressure (psf)
B ≤ 2	2,000
2 < B ≤ 5	2,500
5 < B ≤ 9	3,000

3. Footing Width and Embedment

Spread footings should have a minimum width of 18 inches and exterior unheated footings should embedded at least 30 inches below the lowest adjacent grade for frost protection.

4. Temporary Loading Conditions

The bearing pressures indicated may be increased by one-third for temporary loading conditions such as wind and seismic loads.

5. Settlement

Based on the subsoil conditions encountered and the assumed building loads, we estimate total settlement for the foundation designed as indicated to be approximately 1 inch. Differential settlement is estimated to be approximately ½ inch. Additional settlement may occur if potentially moisture sensitive soils remain below the building and are wetted following construction.

6. Foundation Base

The footing bearing level should be cleared of loose or deleterious material and properly compacted fill prior to placing concrete.

7. Lateral Resistance for Footings

Lateral resistance for footings placed on compacted structural fill is controlled by the sliding resistance between the footings and subgrade soil. A friction value of 0.4 may be used in the design for lateral resistance for footings bearing on properly compacted on-site fine-grained soil (silt). A friction value may increased to 0.5 for foundations bearing on properly compacted structural fill (granular soil).

C. Concrete Slab on Grade

1 . Building Slab Support

Concrete slabs should be supported on a properly prepared subgrade as recommended in the Subgrade Preparation section of this report. We recommend the existing potentially collapsible soil should be overexcavated as previously recommended.

2. Underslab Base Course

A 4-inch layer of properly compacted base course should be placed below concrete slabs to provide a firm subgrade and to promote even curing of concrete.

3. Vapor Barrier

A vapor barrier should be considered below slabs which will receive sensitive or impermeable floor coverings.

4. Non-structural Slab Support

Non-structural slabs including perimeter flatwork and sidewalks should be supported on a properly prepared subgrade as recommended in the Subgrade Preparation section of this report. Specifically, flatwork areas should be prepared to provide on the order of 2 to 4 feet of properly compacted fine grained support soil.

D. Lateral Earth Pressures

The following equivalent fluid weights are given for design of possible earth retaining walls and trench boxes. The active condition is where the wall moves away from the soil and the passive is where the wall moves into the soil. The at-rest condition is where the wall does not move.

Condition	Equivalent Fluid Weight On-site Soils (pcf)
Active	40
Passive	300
At Rest	60

The active and at rest conditions given in the table above should be increased by 10 pcf and the passive pressure should be decreased by 20 pcf for seismic design. This assumes a short period spectral acceleration of 0.71 g which represents a 2 percent probability of exceedance in a 50 year period.

It should be recognized that the above values account for the lateral earth pressures due to the soil and level backfill conditions and do not account for hydrostatic pressures. Lateral loading should be increased to account for surcharge loading if structures are placed above the wall and are within a horizontal distance equal to the height of the wall.

Care should be taken to prevent infiltration of surface water into the backfill material adjacent to the walls. The risk of hydrostatic build-up can be reduced by placing subdrains behind the walls consisting of free draining gravel wrapped in a filter fabric (Mirafi 140N or equivalent). Alternately, weep holes may be provided every 10 feet at the base of walls to assist in the drainage of water.

E. Seismicity, Liquefaction and Faulting

1 . Seismicity

Listed below is a summary of the site parameters for the 2006 International Building Code.

a. Site Class (Assumes the collapsible soil is removed and properly compacted)	C
b. Short Period Spectral Response Acceleration, S_S	0.71g
c. One Second Period Spectral Response Acceleration, S_1	0.22g

d. PGA = 0.29g (2% probability of exceedance in a 50 year recurrence interval)

e. Fa 1.118 (To adjust S_S for site Class C)

f. Fv 1.576 (To adjust S_1 for site Class C)

2. Liquefaction

Based on subsurface conditions encountered in the borings, the subsurface soils are non-liquefiable during a severe seismic event.

3. Faulting

Based on literature reviewed and observations made at the site by AGEC, there are no mapped faults extending through the site. A detailed fault study is beyond the scope of this report.

F. Soil Corrosion

Based on laboratory test results, the on-site soils present a "low" potential for sulfate attack. Although the test results indicates a low sulfate attack potential, our experience in the area indicates the on-sites soils may contain sulfates in sufficient concentration to be corrosive to concrete. Therefore, we recommend that concrete that will be in contact with the on-site soil and bedrock contain Type V sulphateresistant cement and be designed in accordance with the provisions provided in the American Concrete Institute Manual of Concrete Practice (ACI) 318 Section 4.3 and the 2006 International Building Code. Table 4.3.1 of ACI 318 should be referenced utilizing a sulfate exposure category of "severe". Consideration should be given to cathodic protection of buried metal pipes or the use of PVC pipe when permitted by local building codes.

G. Pavement

Based on the subsoil conditions encountered, AASHTO design methods, LDS church minimum design standards, and a 20-year design life, the following recommendations are given.

1 . Subgrade Support

We anticipate subgrade materials in the proposed parking areas will generally consist of a properly prepared subgrade consisting of properly compacted silty sand as recommended in the Subgrade Preparation section of this report. For design purposes we have assumed a CBR value for the subgrade of 5 percent for a properly prepared subgrade.

2. Pavement Section Thicknesses

The following pavement sections are recommended.

Area	Flexible Pavement		Rigid Pavement	
	Asphalt (inches)	Base Course (inches)	Concrete (inches)	Base Course (inches)
Light Duty Parking*	2½	6	NA	NA
Bus Route/Entrances	3	6	NA	NA
Loading Dock	3½	6	5	4

* We recommend the asphalt be increase to 3 inches due to frost conditions

3. Pavement Materials

Pavement section materials should meet Cedar City specifications for gradation and quality. The pavement section thicknesses indicated assume that the asphaltic concrete and base course are high quality materials. The asphaltic concrete should have a minimum Marshall stability of 1,800 pounds and the base course have a minimum CBR value of 50 percent.

4. Jointing

Joints for concrete pavement should be laid out in a square rectangular pattern. Joint spacing should not exceed 30 times the thickness of the slab. Joints should be at least one quarter of the slab thickness.

5. Drainage

The collection and diversion of drainage away from the pavement surface is extremely important to the satisfactory performance of the pavement section. Proper drainage should be provided.

H. Construction Materials Testing and Observations

A representative of AGEC should observe/verify the following during grading operations:

1. Soil containing significant amounts roots and organics is removed prior to placing fill.
2. Verify the subgrade is properly prepared below pavement, flatwork, and building areas as recommended in the Subgrade Preparation section of this report.
3. The recommended structural fill depths are provided below foundations. Conduct compaction testing on fill placed below foundations. We recommend testing each foot of fill placed below foundations.
4. The fill material is placed in proper lift thicknesses for the compaction equipment utilized. A sufficient number of tests should be taken to verify proper compaction.
5. Conduct construction materials testing on improvements at a frequency which meets or exceeds the Cedar City minimum requirements.
6. Conduct special inspections as required by the architect, structural engineer, Cedar City, and the 2006 International Building Code.

LIMITATIONS

This report has been prepared in accordance with generally accepted soil and foundation engineering practices in the area for design purposes. The conclusions and recommendations included within the report are based on the information obtained from the borings drilled at the locations indicated on the site plan, the data obtained from laboratory testing, engineering analysis, and our experience in the area. Variations in the subsurface conditions may not become evident until additional exploration or excavation is conducted. If the subsurface soil or groundwater conditions are found to be different from what is described in this report, we should be notified to reevaluate the recommendations given.

APPLIED GEOTECHNICAL ENGINEERING CONSULTANTS, INC.

LICENSED PROFESSIONAL ENGINEER
No. 378300
Arnold
DeCastro
12-9-16
STATE OF UTAH

Arnold DeCastro, P.E.

Reviewed by: G. Wayne Rogers, P.E.

REFERENCE

"Interim Geologic Map of the Cedar City 30'x60' Quadrangle, Iron and Washington Counties, Utah" by Peter D. Rowley et ai, 2006.

N

Figure 1: Vicinity Map

N

Figure 1a: Vicinity Map

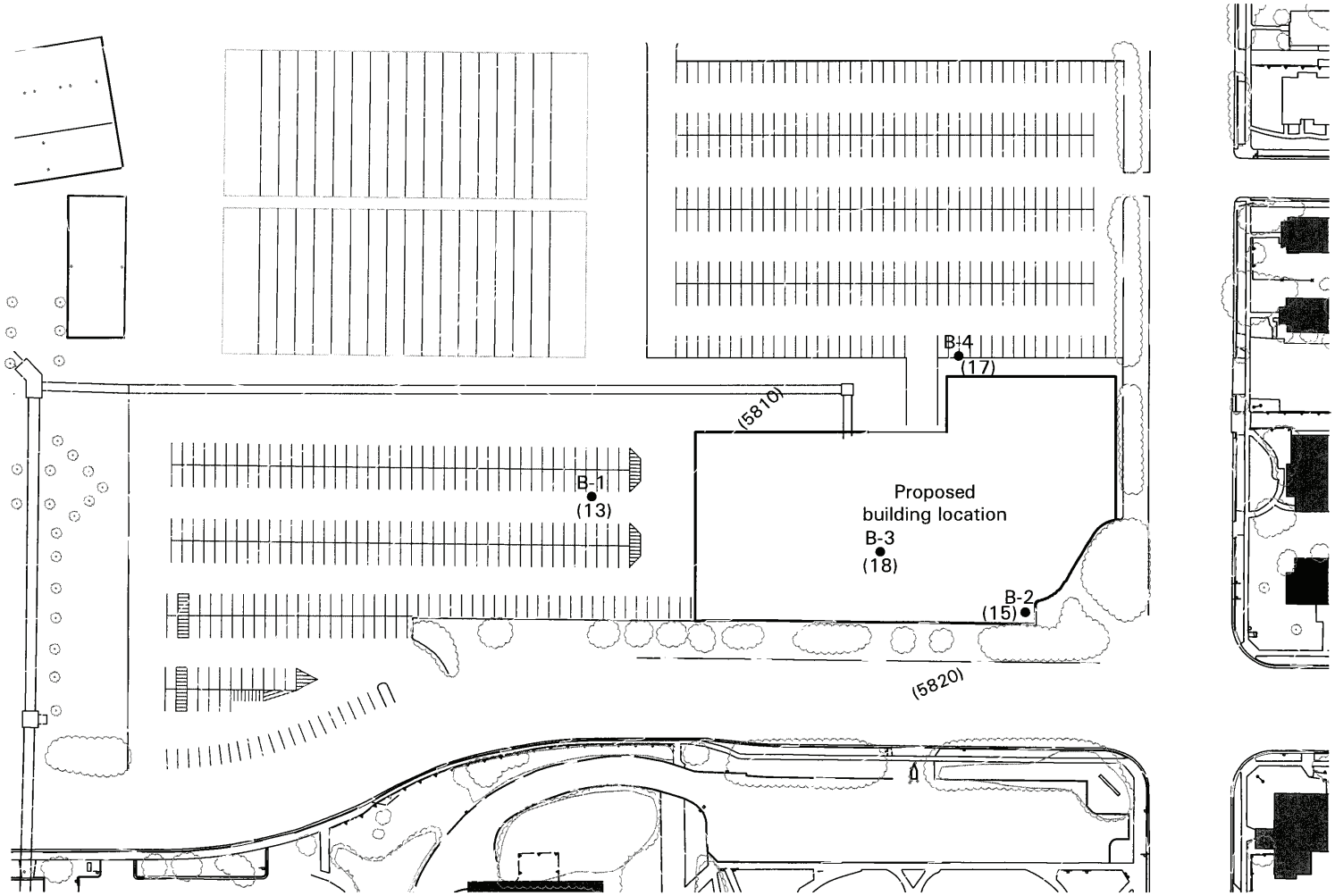

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Figure 2: Site Plan

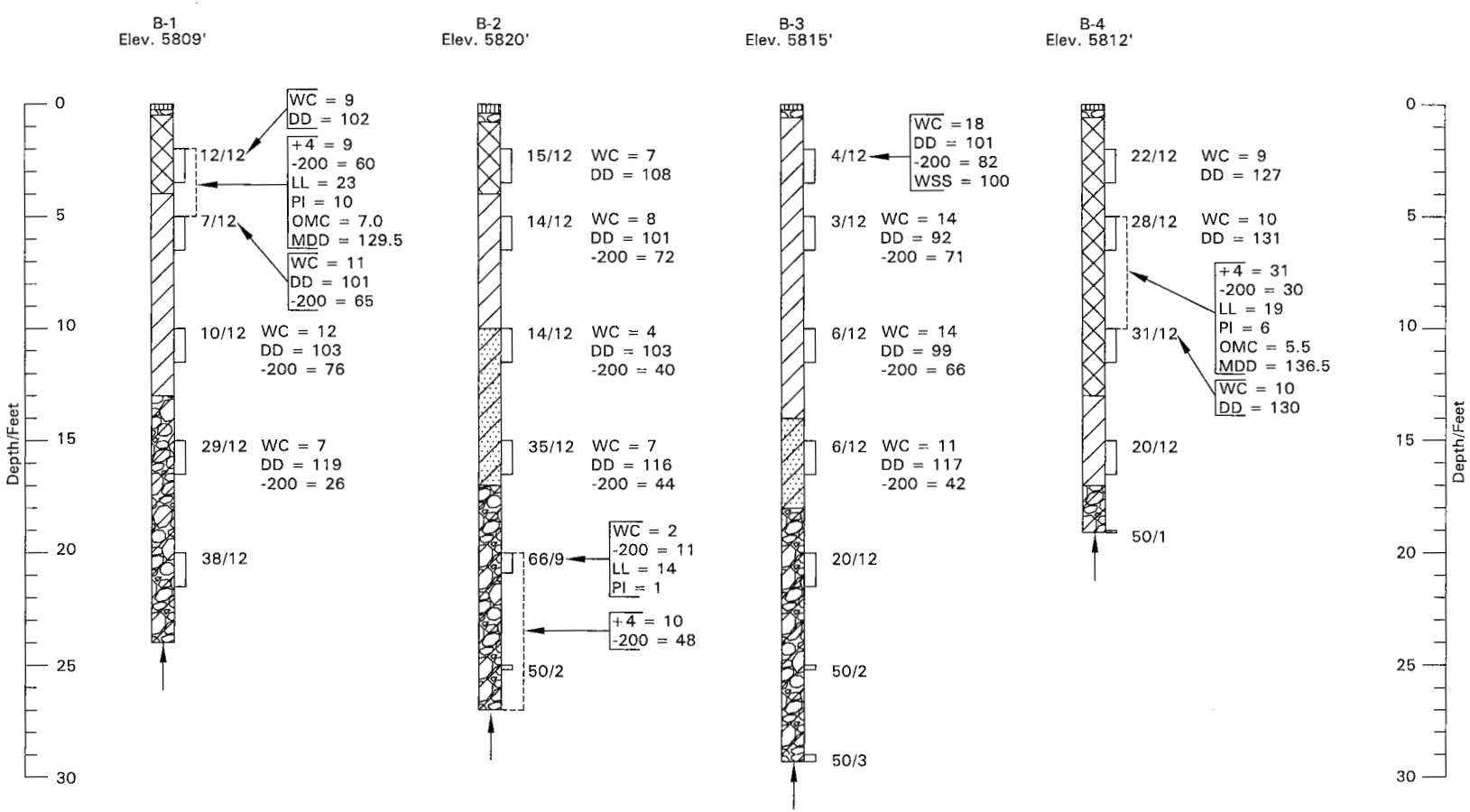


Figure 3: Logs of Exploratory Borings

LEGEND:

Asphalt; good condition, black.

Road base; 3½ to 4 inches thick, well compacted, moist, light brown.

Fill; silty sand to sandy lean clay to silty clayey gravel with sand, contains varied amounts of gravel, poorly (B-1 and B-2) to well (B-4) compacted, dry to moist, fine-grained, brown.

Silt (ML); contains varied amounts of sand and occasional gravel, soft to medium stiff, dry to moist, porous to non-porous, brown.

Silty sand (SM); loose to medium dense, dry to moist, porous to non-porous, brown.

Silty gravel with sand (GM); contains boulders near bottom of borings, medium to very dense, moist, sub-rounded gravel, light brown.

10/12 California drive sample taken. The symbol 10/12 indicates that 10 blows from a 140 pound hammer falling 30 inches were required to drive the sampler 12 inches.

Indicates disturbed sample taken.

Indicates practical backhoe refusal on boulders, sandstone bedrock, or limestone bedrock.

NOTES:

1. The borings were drilled on September 7, 2010 utilizing a drill rig equipped with 8-inch hollow-stem augers.
2. The locations of the borings were measured by pacing from features shown on the site plan provided.
3. The elevations of the borings were interpolated between contours shown on the site plan provided.
4. The boring locations and elevations should be considered accurate only to the degree implied by the method used.
5. The lines between the materials shown on the boring logs represent the approximate boundaries between material types and the transitions may be gradual.
6. Free water was not encountered in the borings at the time of drilling.
7. WC = water content (%);
   DD = dry density (pcf);
   +4 = percent retained on the No. 4 sieve;
   -200 = percent passing No. 200 sieve;
   LL = liquid limit (%);
   PI = plasticity index (%);
   WSS = water soluble sulfate (ppm);
   OMC = optimum moisture content (%);
   MDD = maximum dry density (pcf).

Figure 4: Legend and Notes of Exploratory Borings

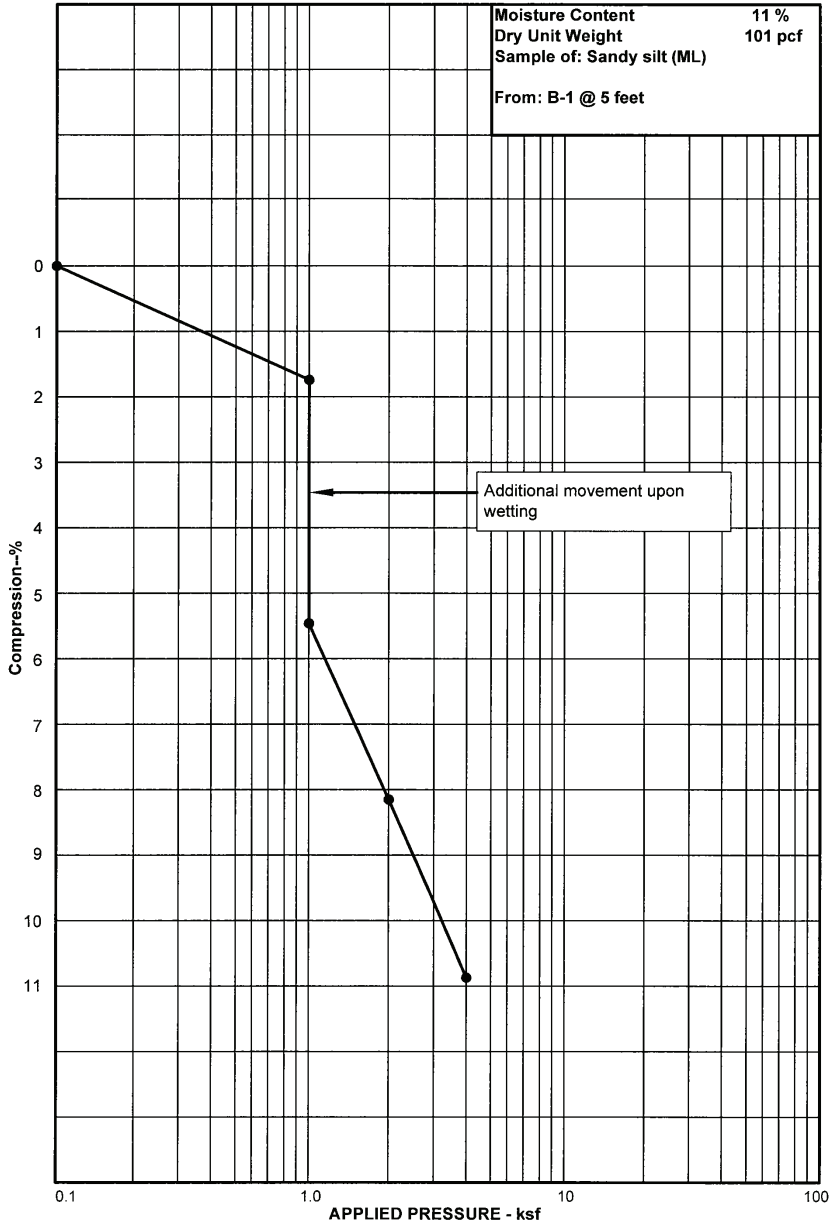


Figure 5: Consolidation Test Results

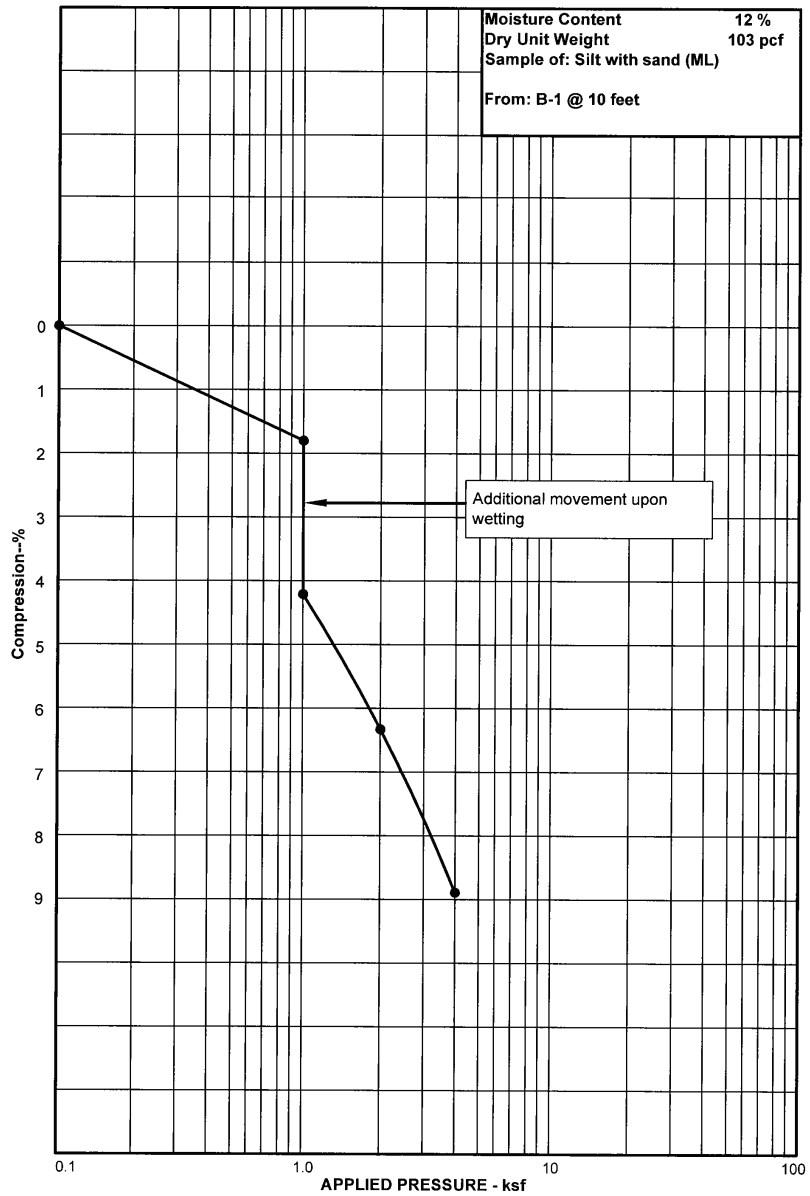


Figure 6: Consolidation Test Results

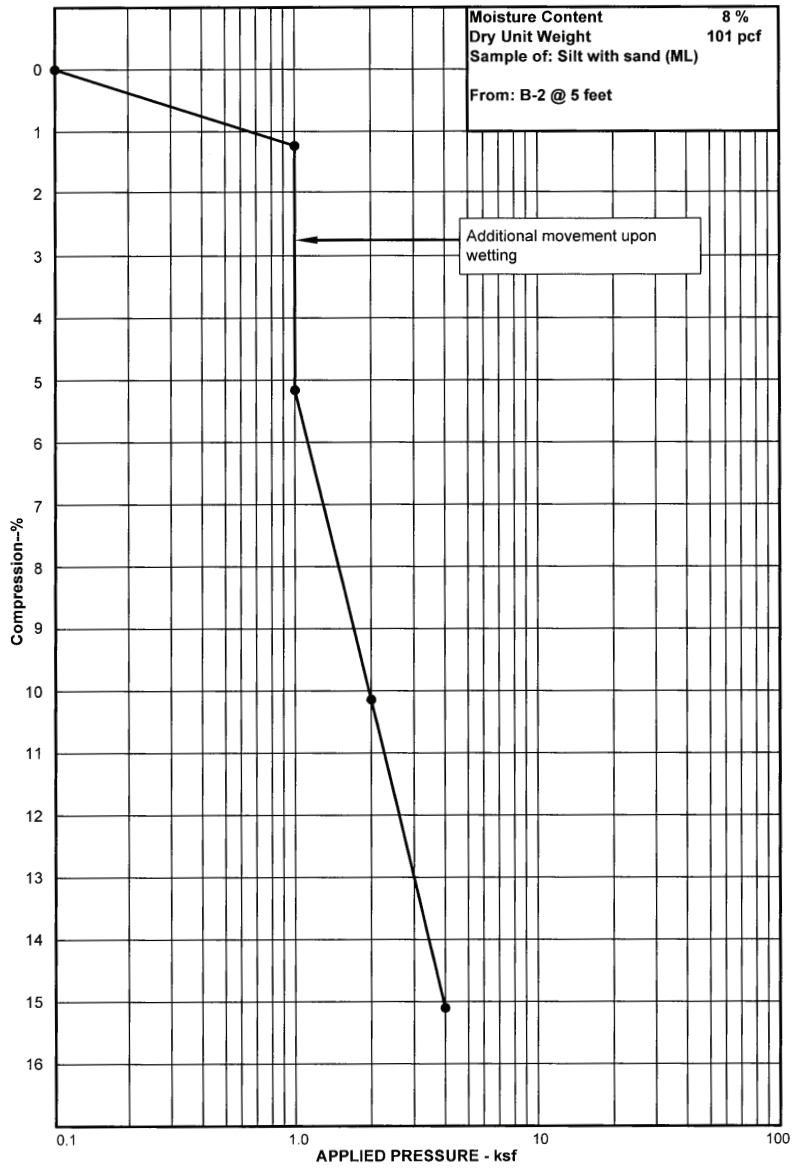


Figure 7: Consolidation Test Results

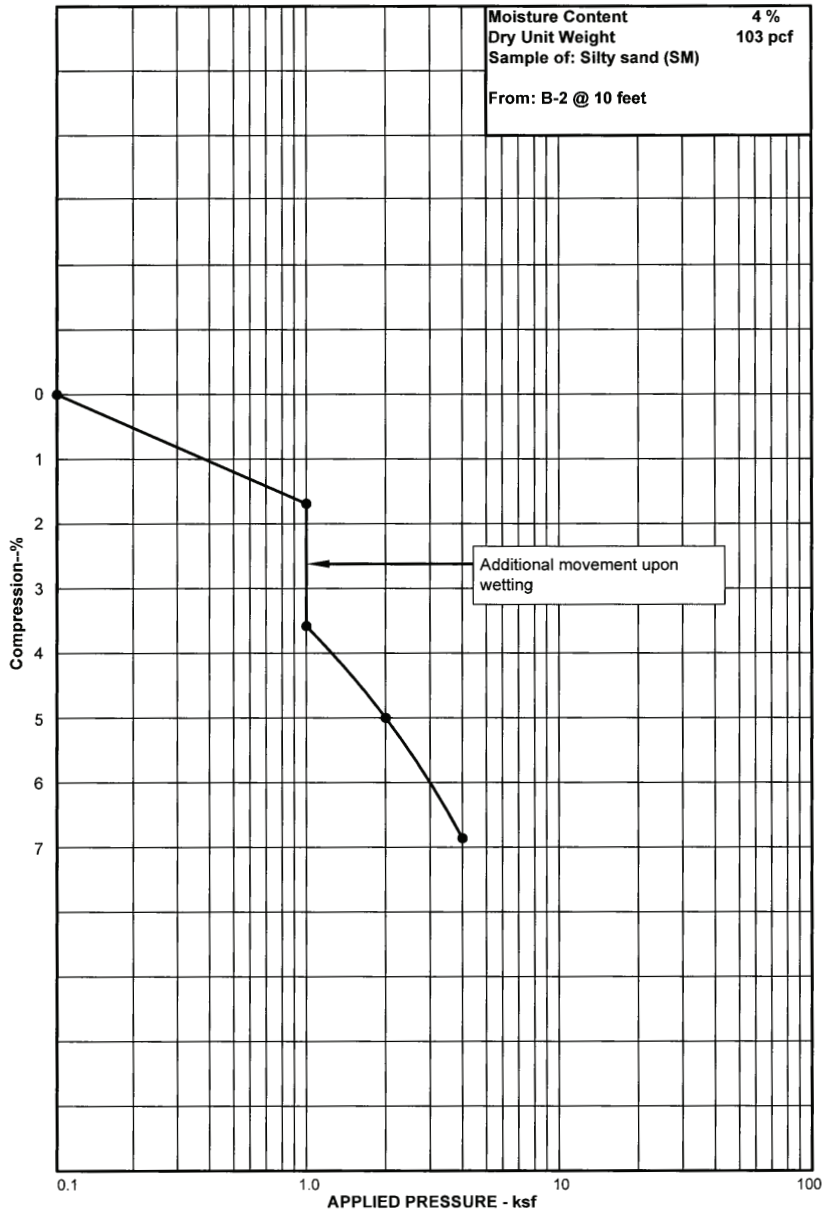


Figure 8: Consolidation Test Results

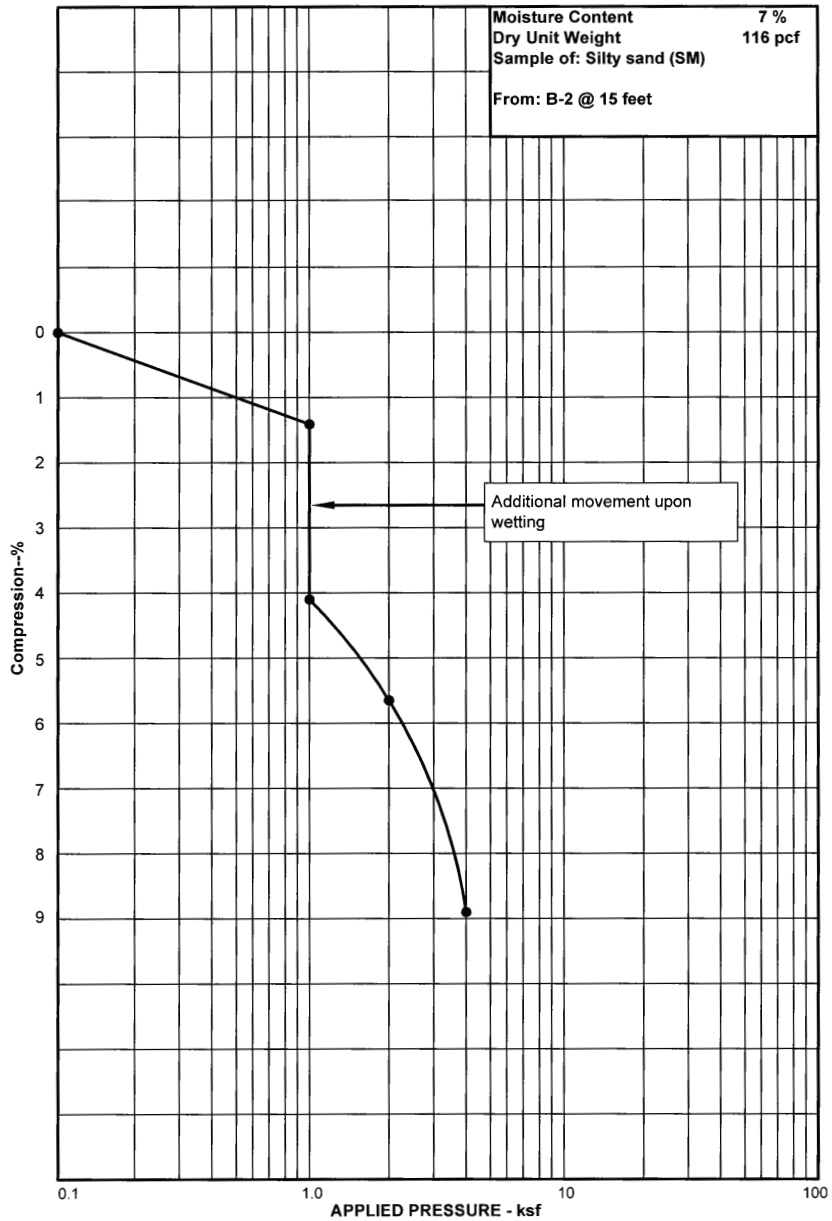


Figure 9: Consolidation Test Results

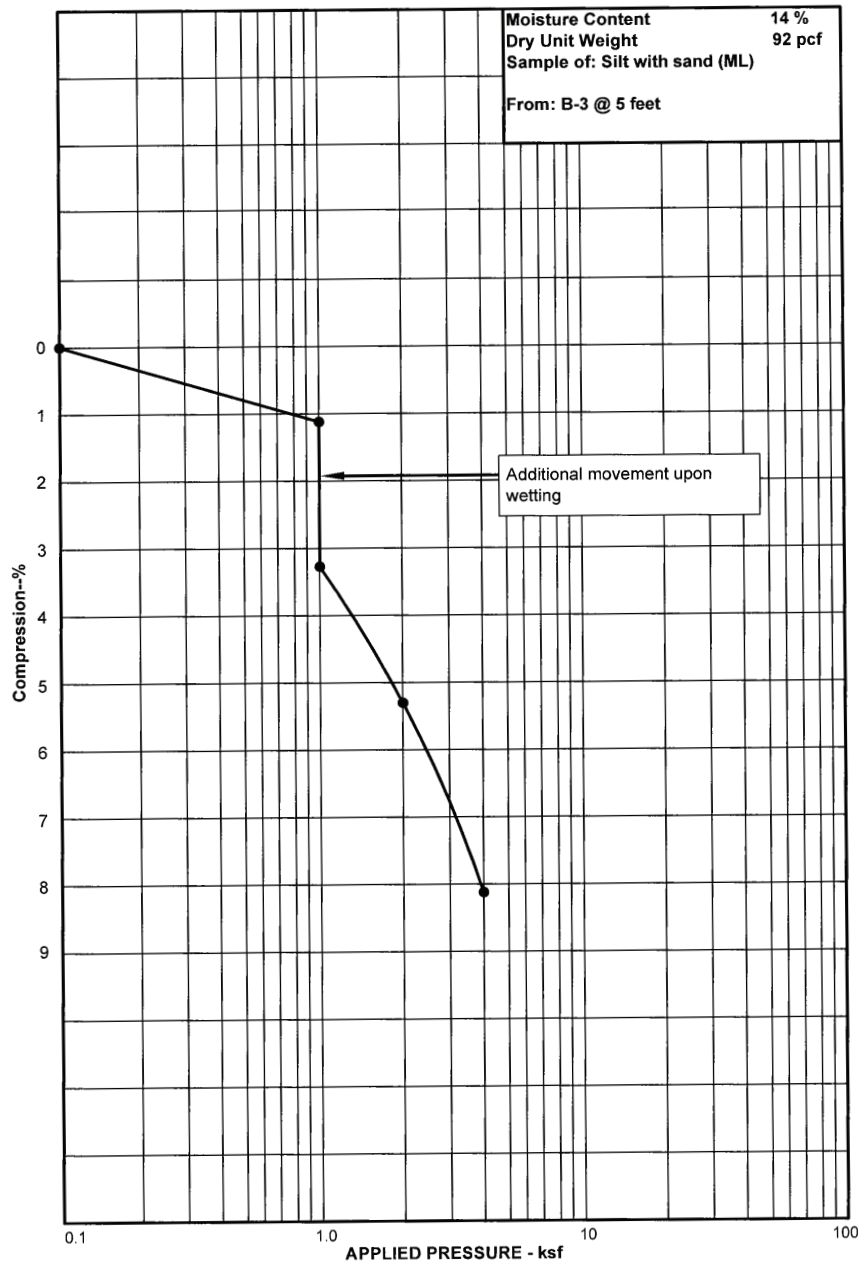


Figure 10: Consolidation Test Results

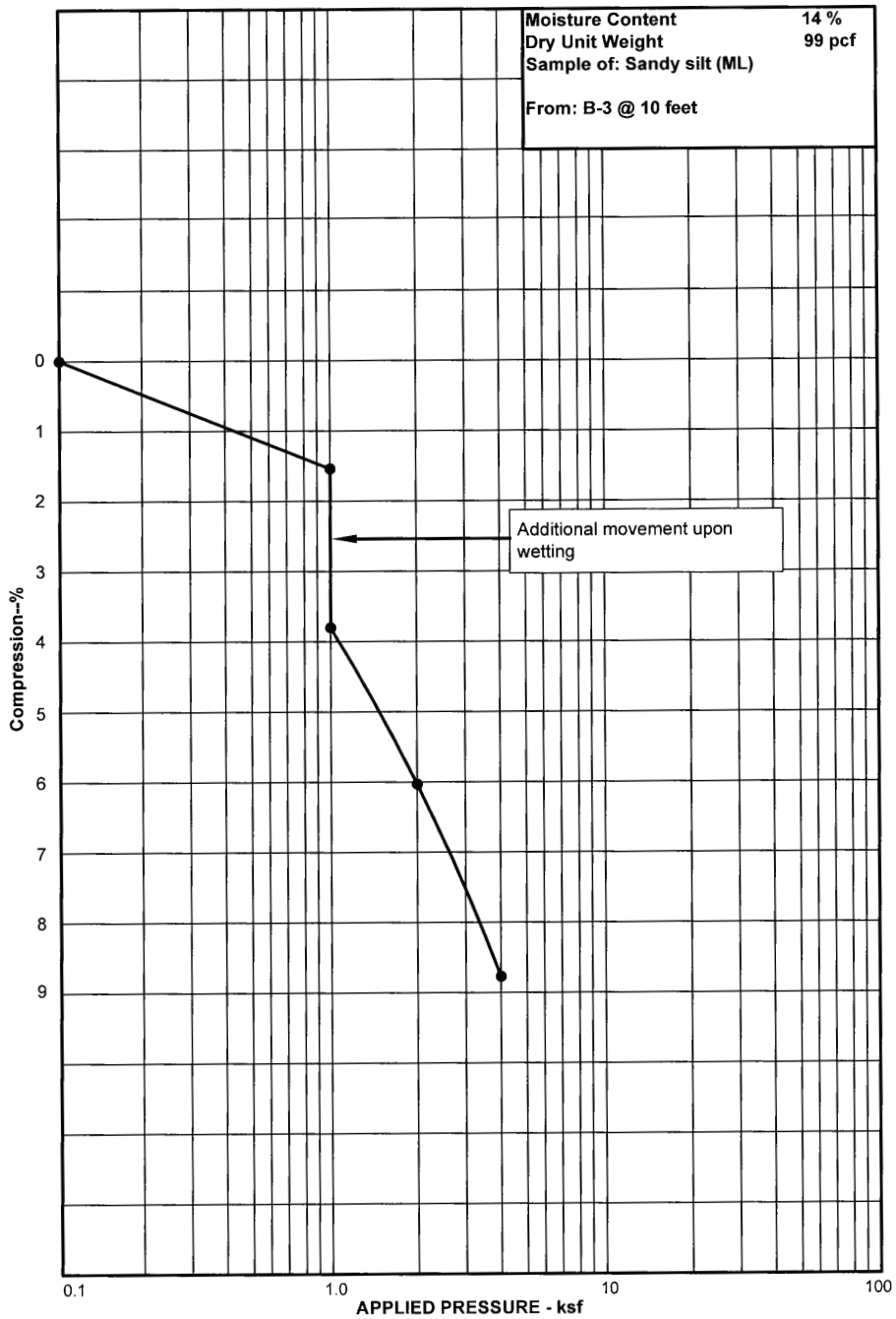


Figure 11: Consolidation Test Results

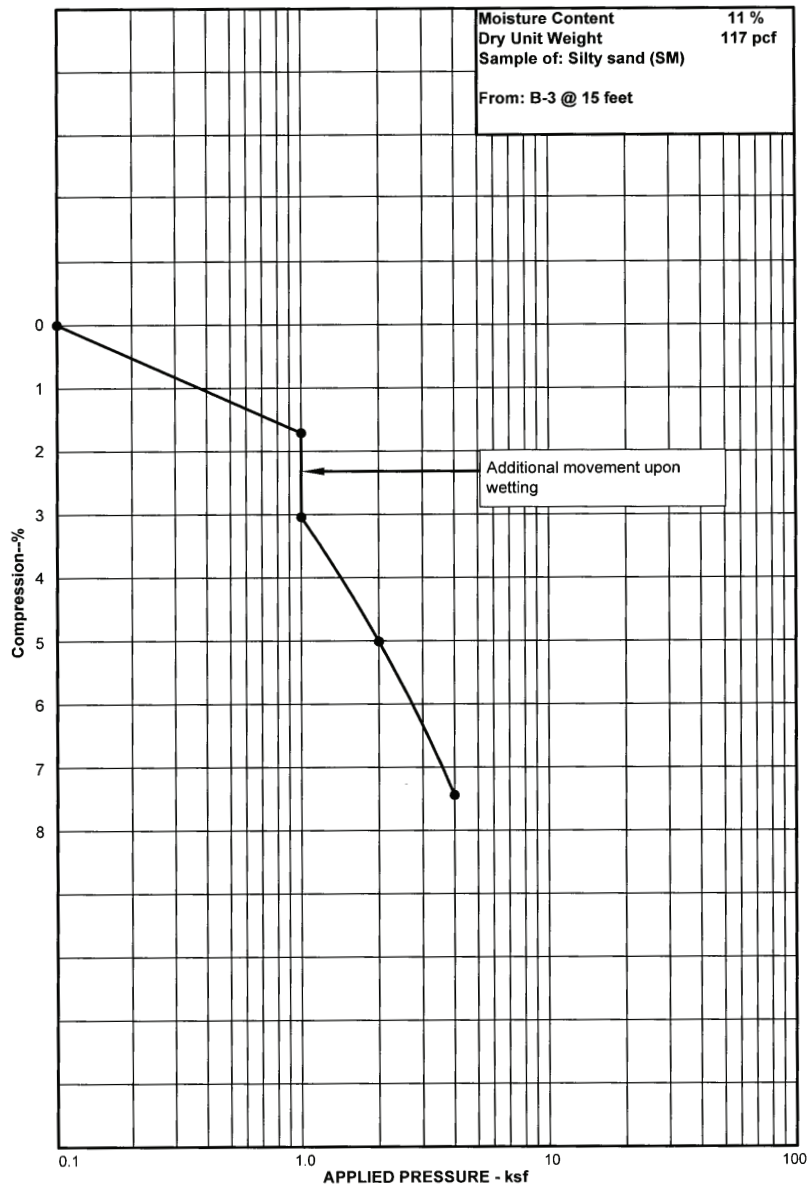
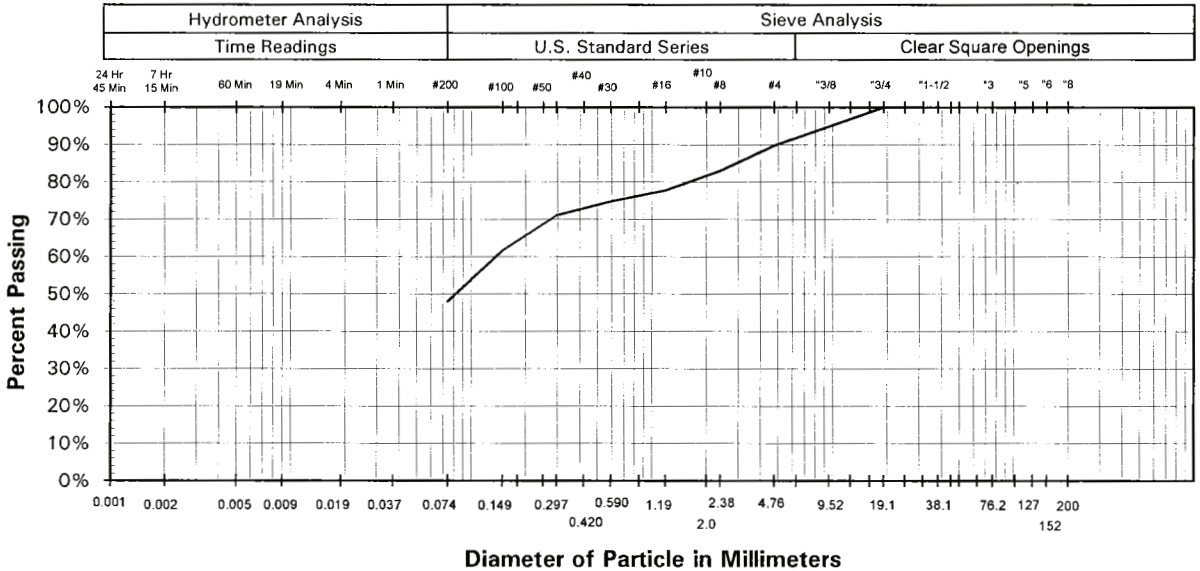


Figure 12: Consolidation Test Results

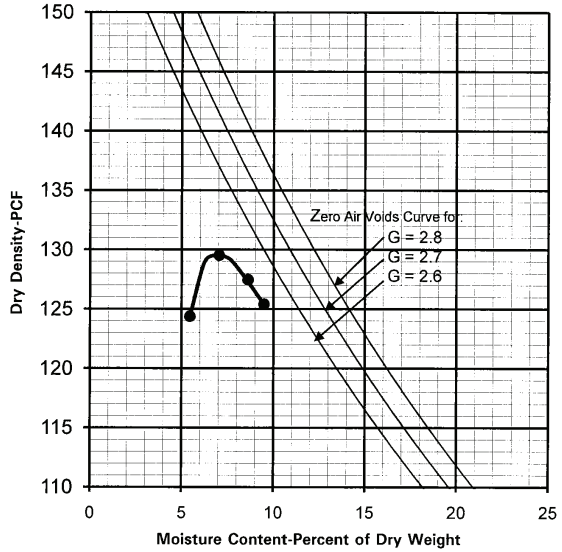


Clay to Silt	Sand			Gravel		Cobbles	Boulders
	Fine	Medium	Coarse	Fine	Coarse		

Gravel:	10%	Liquid Limit:	-
Sand:	45%	Plasticity Index:	-
Silt and Clay:	48%	Sample Location:	B-2 @ 20-27' (cuttings)

Sample Description: Silty sand (SM)

Figure 13: Gradation Test Results



Sample No.	100913C
Maximum Dry Density:	129.5
Optimum Moisture:	7.0
Atterberg Limits	
Liquid Limit:	23%
Plasticity Index:	10%
Gradation	
Gravel:	9%
Sand:	31%
Silt & Clay:	60%

Moisture - Density Relationship Test Procedure: ASTM D-1557 B
Sample Description: Fill; sandy lean clay (CL)

Reviewed By: TT

Sample Location: B-1 @ 2-5'

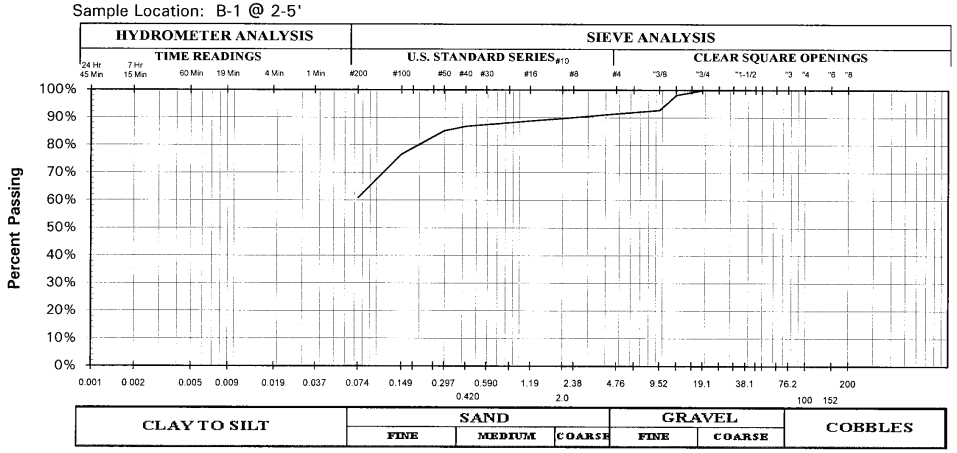
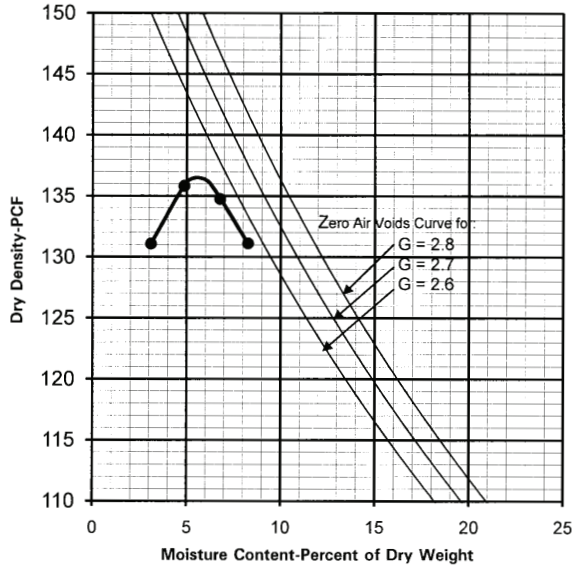


Figure 14: Gradation and Moisture-Density Relationship Results



Sample No.	100913B
Maximum Dry Density:	136.5
Optimum Moisture:	5.5
Atterberg Limits	
Liquid Limit:	19%
Plasticity Index:	6%
Gradation	
Gravel:	31%
Sand:	39%
Silt & Clay:	30%

Moisture - Density Relationship Test Procedure: ASTM D-1557 B

Reviewed By: TT

Sample Description: Fill; silty, clayey sand with gravel (SC-SM)

Sample Location: B-4 @ 5-10'

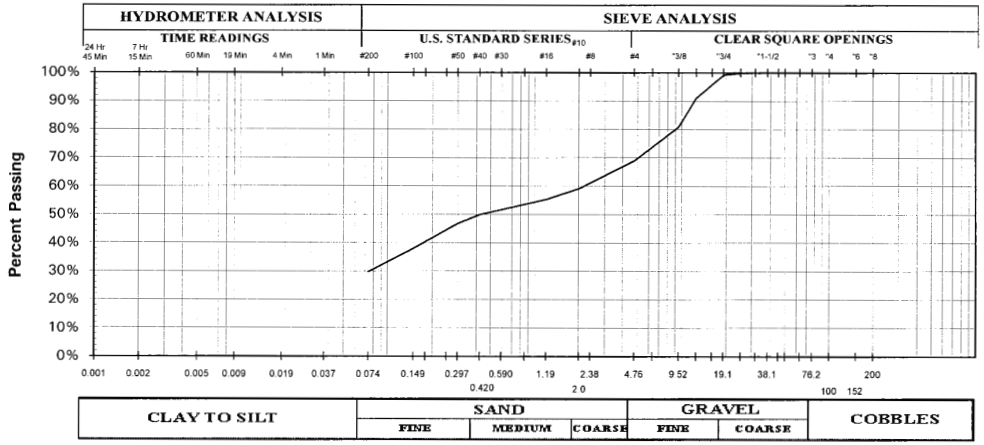


Figure 15: Gradation and Moisture-Density Relationship Results

Sample Location				Gradation			Atterberg Limits		Moisture-Density Relationship			
Boring No.	Depth (ft)	Natural Moisture Content (%)	Natural Dry Density (pcf)	Gravel (%)	Sand (%)	Silt/Clay (%)	Liquid Limit (%)	Plastic Index (%)	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Water Soluble Sulfates (ppm)	Soil Type
B-1	2-5			9	31	60	23	10	129.5	7.0		Fill; sandy lean clay (CL)
B-1	2	9	102									Fill; silty sand with gravel (SM)
B-1	5	11	101			65						Sandy silt (ML)
B-1	10	12	103			76						Silt with sand (ML)
B-1	15	7	119			26						Silty gravel with sand (GM)
B-2	2	7	108									Fill; silty sand (SM)
B-2	5	8	101			72						Silt with sand (ML)
B-2	10	4	103			40						Silty sand (SM)
B-2	15	7	116			44						Silty sand (SM)
B-2	20	2				11	14	1				Poorly graded gravel with silt and sand (GP-GM)
B-2	20-27			10	42	48						Silty sand (SM)
B-3	2	18	101			82					100	Silt with sand (ML)
B-3	5	14	92			71						Silt with sand (ML)
B-3	10	14	99			66						Sandy silt (ML)
B-3	15	11	117			42						Silty sand (SM)

Table 1: Summary of Laboratory Test Results

Sample Location				Gradation			Atterberg Limits		Moisture-Density Relationship			
Boring No.	Depth (ft)	Natural Moisture Content (%)	Natural Dry Density (pcf)	Gravel (%)	Sand (%)	Silt/Clay (%)	Liquid Limit (%)	Plastic Index (%)	Maximum Dry Density (pcf)	Optimum Moisture Content (%)	Water Soluble Sulfates (ppm)	Soil Type
B-4	2	9	127									Fill; silty sand with gravel (SM)
B-4	5-10			31	39	30	19	6	136.5	5.5		Fill; silty clayey sand with gravel (SC-SM)
B-4	5	10	131									Fill; silty sand with gravel (SM)
B-4	10	10	130									Fill; silty sand with gravel (SM)

Table 1: Summary of Laboratory Test Results

ajc architects and Ann Frank Farrington, together with Reece Summers, Shauna Mendini, David Tanner and Tyson Kyhl, toured four museums in Washington State in October 2010. The museums visited are the Frye Art Museum, Whatcom Museum, Burke Museum of Natural History and Culture, and the Henry Art Gallery. The following pages include a brief photographic summary of the lessons learned during our tours.

Museum Tour Summary

G

PHYSICAL SPACES

Consider providing benches or built-in seating just inside lobby but out of the way of the information/reception desk for visitors to rest/gather/get organized before entering galleries.

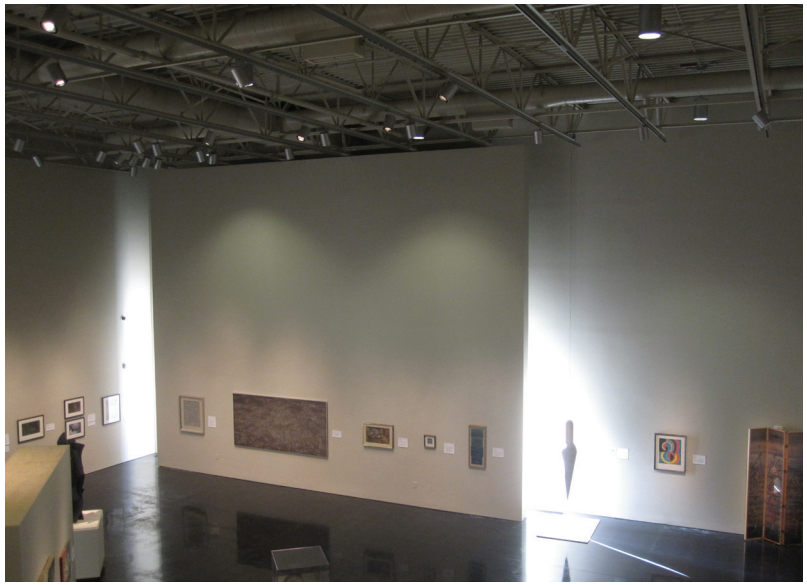
Frye Art Museum

Burke Museum of Natural History & Culture

Large open Grand Lobby allows for demonstrations related to exhibits to happen outside of galleries.

Burke Museum of Natural History & Culture

Exhibit Areas—Use one lamp type/style simplify inventory.



Whatcom Museum

Burke Museum of Natural History & Culture

Henry Art Gallery

Exhibit Areas—Run all "systems" (mechanical-electrical-security-fire-sound) on ceilings as to not clutter equipment on walls. Keep gallery wall clear of any building system devices.

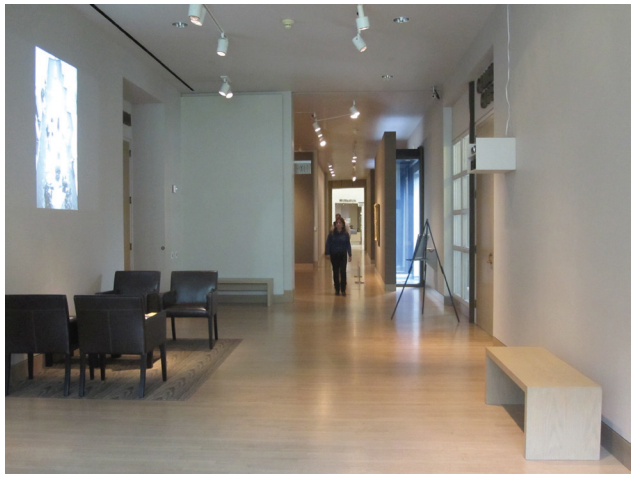
Digital gallery—Provide a light trap to help with the transition of light from bright to dark.

Gallery Walls—Offset the exhibit walls from the building walls. This allows patching and painting of defined areas without the need to go full height to ceilings/trims/bases, etc.

Frye Art Museum

Burke Museum of Natural History & Culture

Provide seating opportunities in and between galleries for additional exhibit opportunities and visitor contemplation.



Frye Art Museum

Henry Art Gallery

Wood floors in gallery spaces work great. Make sure the floors are floating floors on sleepers.

Frye Art Museum

Provide WiFi in galleries (to maximize usability for students).

Ensure ample power and I/T infrastructure is provided throughout museum to eliminate the need for retrofitting digital media displays.

Frye Art Museum

Frye Art Museum

Ceiling heights in gallery spaces: 16 feet to top of finished wall/19 feet to underside of structure feels good.

Burke Museum of Natural History & Culture

Two-level space with ability to look down into gallery—scale does not feel right.

Whatcom Museum

Prefers to NOT have entry doors into each gallery—just openings.

Whatcom Museum

Whatcom Museum

Temporary separation of spaces can be achieved using scrims.

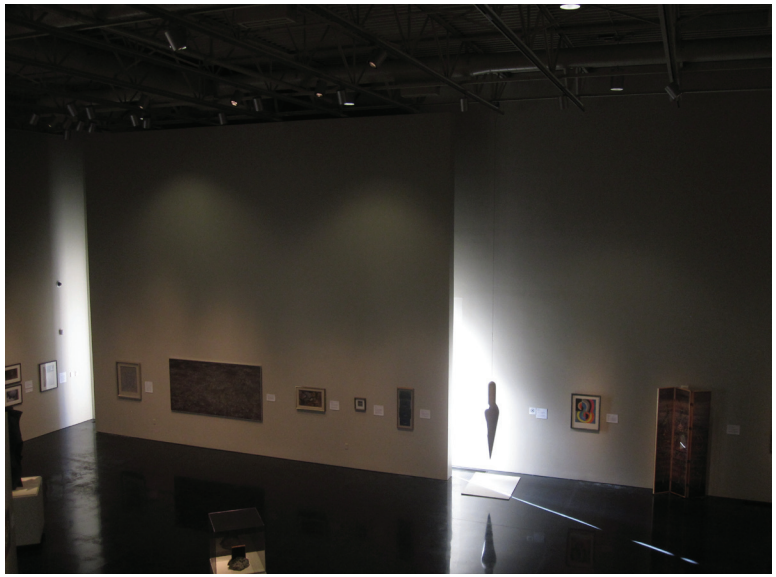
Frye Art Museum

Moveable walls to separate gallery spaces could be hidden in pockets although this will eat up more useable space than other types of space separators.

Whatcom Museum

Incorporate daylight into gallery spaces that does not "touch the art."

Frye Art Museum



Whatcom Museum

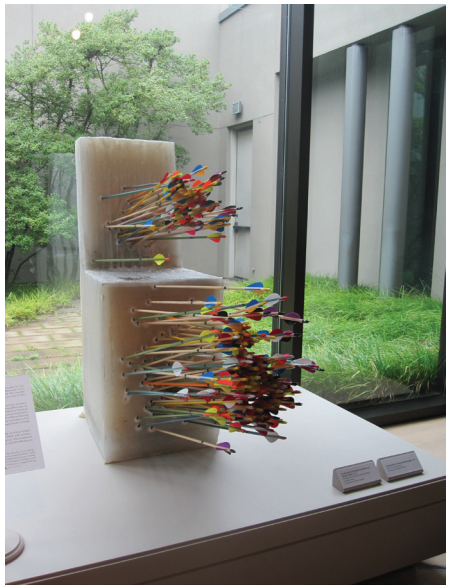
Frye Art Museum

Create transparency of perimeter spaces to pull people into these spaces.

Henry Art Gallery

Whatcom Museum

Use the building as an armature for art opportunities.



Frye Art Museum

Nice to be able to enter into the building without having to pass into a gallery space.

Frye Art Museum

Frye Art Museum

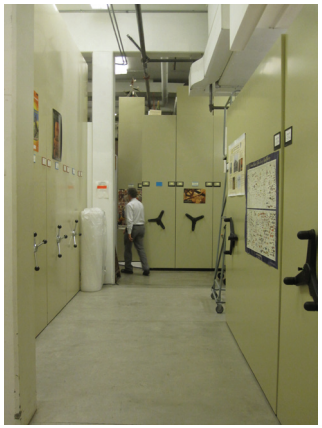
Provide openings and circulation for a 10'x10'x10' cube to pass through the space.

Whatcom Museum

Basement under building can be used as additional storage.
Consider off-site storage possibilities in long-term collection growth plan.

Collections storage should have high-density storage system to keep artifacts organized and well protected and to maximize space.

Henry Art Gallery



Burke Museum of Natural History & Culture

Provide visual connection to Museum Shop, even when closed or locked before or after hours of operation.

Frye Art Museum

Provide an office for Museum Shop Manager and ample storage for merchandise.

Frye Art Museum

Museum Shop display fixtures and cash-wrap are best if left flexible/moveable so that displays can be changed often.

Frye Art Museum

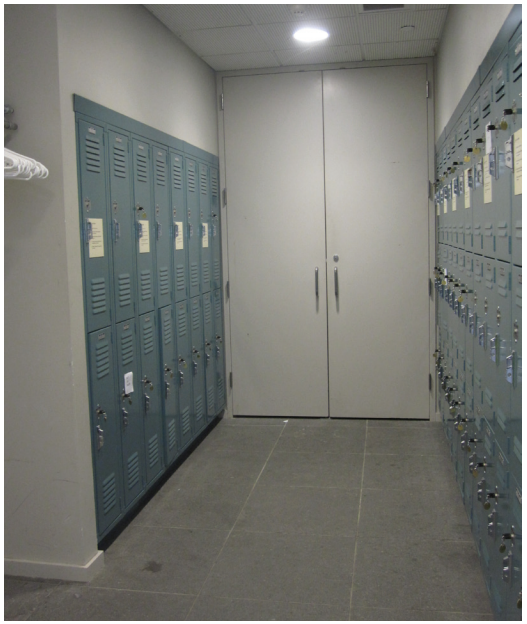
Reception-Coat/Bag-Storage-Museum Shop can be combined only if Museum Shop is extremely small with limited merchandise. Keeping these functions distinctly separate works best.

Frye Art Museum

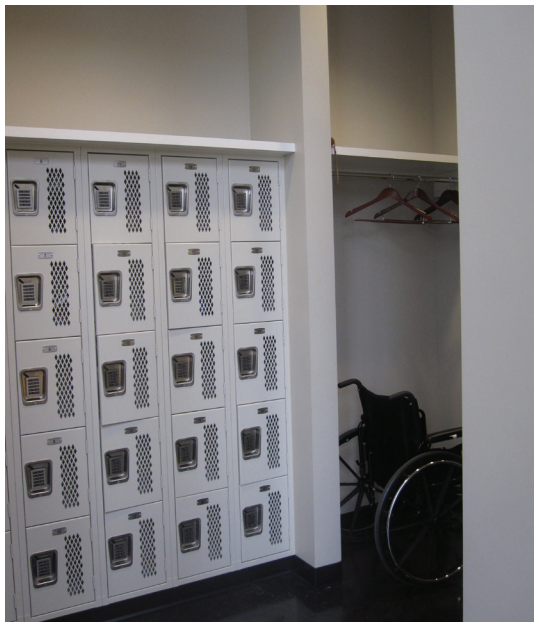
Frye Art Museum

Burke Museum of Natural History & Culture

Consider "self-serve" visitor coat/bag storage area with lockers.



Henry Art Gallery



Whatcom Museum

Consider a dedicated exhibit fabrication space with work benches at perimeter and moveable work tables and woodworking equipment.

Burke Museum of Natural History & Culture

Consider overhead garage doors with glazing at loading dock area to allow natural light and multiple uses of the space (such as exhibit fabrication and staging catering).

Burke Museum of Natural History & Culture

Work rooms should have ample work space for proper handling of art.

Henry Art Gallery

An extensive museum library is a great asset if space permits.

Henry Art Gallery

Provide surfaces with rails that will allow staging of framed art.

Henry Art Gallery

Provide tackable surfaces in workspaces.

Classroom should have ample natural light with ability to control.

Frye Art Museum

Consider incorporating a water feature outside of the museum to help draw patrons to the museum and encourage gathering in the outdoor public spaces surrounding the museum.

Frye Art Museum

Consider incorporating "pocket gardens" that can be viewed from inside the museum for sculpture and interpretive opportunities.

Frye Art Museum

PROGRAMS AND OPERATIONS

Create an (ongoing) fund-raising board.

Consider creating a student advisory board.

Consider using the title "Art Center" versus "Art Museum."

Provide a place for meetings—whether it be a formal conference room or an informal café area.

Frye Art Museum

An Alta Survey was prepared for SUU during the programming phase. A reduced version of the Alta Survey is included in this Appendix. A full-size version of the Alta Survey may be obtained from SUU.

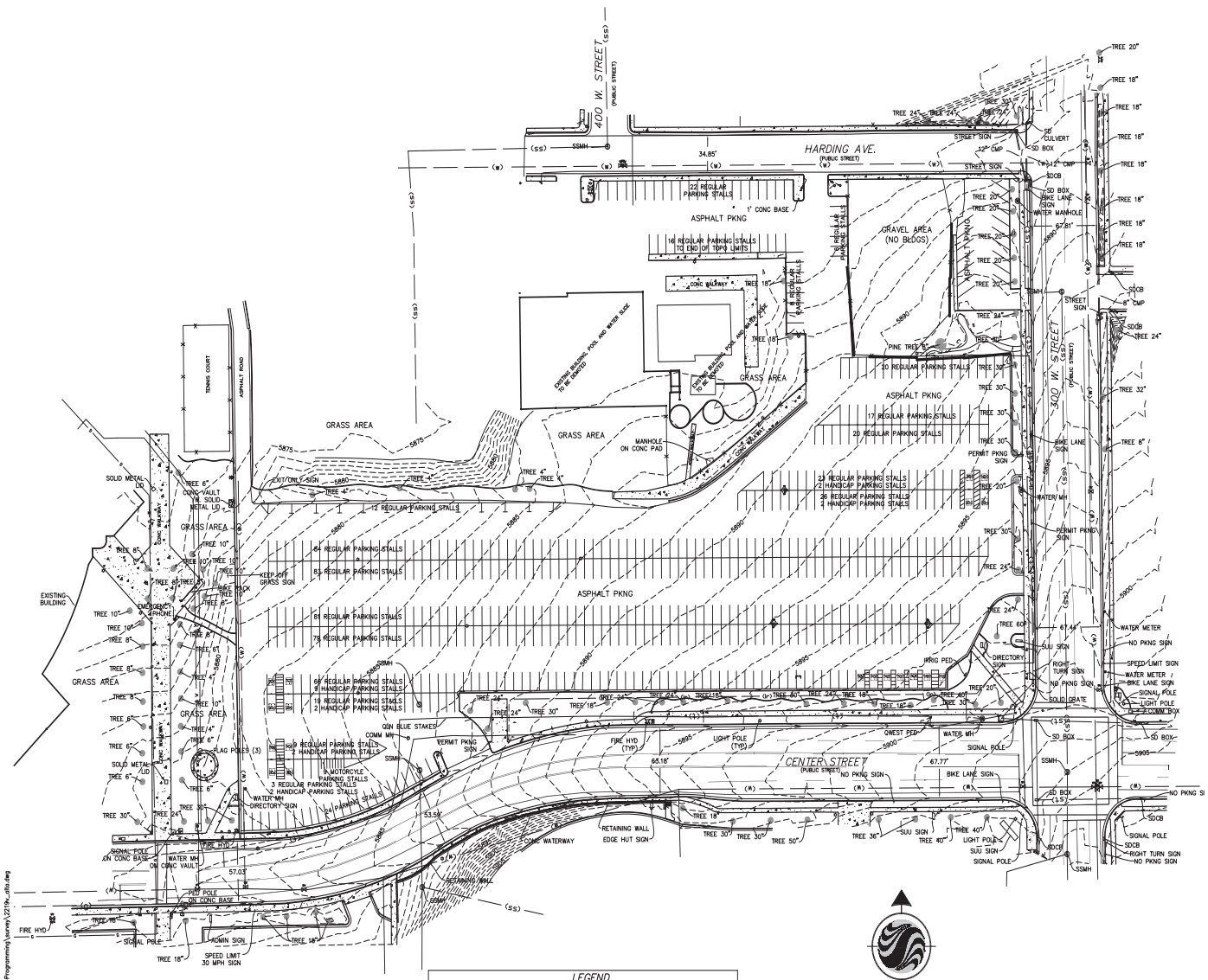
Alta Survey

H

NORTHWEST CORNER SECTION 10,
TOWNSHIP 36 SOUTH, RANGE 11 WEST
SALT LAKE BASE AND MERIDIAN
(FND 3" BC MON SET 1981)

BASIS OF BEARING: S89°22'43"W
MEAS = 5329.05'

NORTHEAST CORNER SECTION 10,
TOWNSHIP 36 SOUTH, RANGE 11 WEST,
SALT LAKE BASE AND MERIDIAN
FND. 3" ALUM CAP MON SET 1977



LEGEND

- PROPERTY LINE
- MOUNMENT LINE
- (ss) EXISTING SANITARY SEWER
- (w) EXISTING WATER LINE
- (g) EXISTING GAS LINE
- (oh) EXISTING OVERHEAD POWER
- (st) EXISTING STORM DRAIN
- EXISTING FENCE LINE
- EXISTING CURB AND GUTTER
- EXISTING SECTION MONUMENT
- SEWER MANHOLE
- STORM DRAIN INLET
- FIRE HYDRANT
- POWER POLE
- GUY-WIRES
- LIGHT POLE
- GM GAS METER
- EM ELECTRIC METER
- WV WATER VALVE
- PROPERTY CORNER SET WITH REBAR AND CAP

N
GRAPHIC SCALE
0 25 50 100 200
(IN FEET)

Certified to: SOUTHERN UTAH UNIVERSITY
FIRST AMERICAN TITLE INSURANCE COMPANY

This is to certify that this map or plat and the survey on which it is based were made in accordance with "Minimum Standard Detail Requirements for ALTA/ACSM Land Title Surveys", jointly established and adopted by ALTA and NSPS in 2005, and includes Items 1, 2, 3, 4, 5, 7(a), 8, 9, 10, 11(a), 11(b), 12, 13, 16, 17, and 18 of Table A thereof. Pursuant to the Accuracy Standards as adopted by ALTA, and NSPS and in effect on the date of this certification, undersigned further certifies that in my professional opinion, as a land surveyor registered in the State of Utah, the Relative Positional Accuracy of this survey does not exceed that which is specified therein.

DATE

GREGORY A. CATES
P.L.S. 161226

LICENSED PROFESSIONAL LAND SURVEYOR
No. 161226
GREGORY A. CATES
STATE OF UTAH

Record Descriptions (Per Title Report):

PARCEL 1:

The North 13 Rods (214.50 feet) 15 3/4 Links (10.40 feet) of Lot 1, Block 4; Perkins Survey, in the West Half of the Northwest Quarter of Section 14, Township 36 South, Range 11 West, Salt Lake Meridian; Together with Lot 1, Block 4 of Birkbecks Survey, in the West Half of the Southwest Quarter of Section 11, Township 36 South, Range 11 West, Salt Lake Meridian.

PARCEL 2:

Commencing at the Southeast Corner of Block 33, Plat B, Cedar City Town Survey, and N00°31'57"W, along the East Line of said Block 33, a distance of 491.33 feet, and S89°57'06"W, along the South Line of Harding Avenue, a distance of 235.50 feet to the true Point of Beginning; thence South 76.72 feet; thence West 48 feet; thence South 134 feet; thence West 242 feet; thence North 141 feet; thence East 28 feet; thence North 69.50 feet; thence N89°57'06"E 262 feet to the Point of Beginning.

Title Documents
Commitment for Title Insurance by:
Company Name: First American Title Insurance Company
Order No.: 362-5338829
Effective Date: September 22, 2010 at 07:30 a.m.

Applicable Survey Exceptions:

10. Easments for public utilities and incidental purposes as shown on the official ownership plat affecting sold land. No documents provided. (Not plotted)

11. Covenants, conditions, restrictions, easements, assessments, liens, charges, terms and provisions recorded in the Official Records. No documents provided. (Not plotted)

12. Easement Agreement for telephone and telegraph lines in favor of The American Telephone and Telegraph Company of Wyoming, recorded December 21, 1929, Entry No. 47309 in Book 5 at Page 80 of Official Records. No documents provided. (Not plotted)

13. Easement Agreement for telephone and telegraph lines in favor of The American Telephone and Telegraph Company of Wyoming, recorded December 21, 1929, Entry No. 47310 in Book 5 at Page 81 of Official Records. No documents provided. (Not plotted)

14. Right-of-Way Easement for telephone and telegraph lines in favor of The Mountain States Telephone and Telegraph Company recorded December 14, 1962, Entry No. 129533 in Book 103 at Page 209 of Official Records. No documents provided. (Not plotted)

15. Right-of-Way Easement for telephone and telegraph lines in favor of The Mountain States Telephone and Telegraph Company recorded May 6, 1977, Entry No. 192157 in Book 227 at Page 745 of Official Records. No documents provided. (Not plotted)

16. Easement for telephone and perpetual easement in favor of Utah Department of Transportation recorded July 15, 1996, Entry No. 366912 in Book 572 at Page 76 of Official Records. No documents provided. (Not plotted)

17. Easement for telephone and perpetual easement in favor of Utah Department of Transportation recorded August 12, 1996, Entry No. 368330 in Book 575 at Page 285 of Official Records. No documents provided. (Not plotted)

NOTES

1. *The Basis of Bearing used on this survey was between two existing Section Corners. The bearing between the Northeast Corner and the Northwest Corner of Section 10, Township 36 South, Range 11 West, Salt Lake Base and Meridian is S89°22'43"W, as measured in the field.*
2. *This survey and plat has been prepared for Southern Utah University and First American Title Insurance Company in accordance with their planning use and purposes. All other parties are subsequently put on notice as to the limited degree of reliance, if any, upon this plat by third parties.*
3. *The location and research of each applicable easement, right-of-way, servitude, and other matters affecting the subject property were made solely upon the reliance of Commitment for Title Insurance, Issued by First American Title Insurance Company, dated September 22, 2010, Order No. 362-53338829 and with respect to the subject property has been shown on the survey, to the extent that such matters can be located.*
4. *Additions or deletions to the drawing by anyone other than the Surveyor, whose seal is shown upon this drawing, is prohibited without written consent of the aforementioned Professional Land Surveyor.*
5. *The subject property shown on the Survey does not lie within a Special Hazard Area, as described on the Flood Insurance Rate Map for the community in which the subject property is located. The subject property lies within a Zone " C " Flood Plain being defined as areas of minimal flooding on the Flood Insurance Rate Map, Map Number 490074 0004 B, with an effective date of October 16, 1984.*

PRELIMINARY

UTILITY STATEMENT:
The underground utilities shown hereon have been located from field observations only. The surveyor makes no guarantee that the underground utilities shown comprise all such utilities in the area, either in service or abandoned. The surveyor further does not warrant that the underground utilities shown are in the exact location indicated although he does state that they are located as accurately as possible from information available. The surveyor has not physically located the underground utilities and the exact location of some utilities may require further field investigation or careful excavation for more precise locations.

Stantec Consulting Services Inc.
3995 South 700 East, Suite 300
Salt Lake City, UT USA
84107-2540
Tel. 801.261.0090
Fax. 801.261.1671
www.stantec.com

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Revision	By	Appd.	YY.MM.DD	Issued	By	Appd.	YY.MM.DD

Client/Project
SOUTHERN UTAH UNIVERSITY CAMPUS
CEDAR CITY, UTAH

Title
ALTA/ACSM LAND TITLE SURVEY

Permit-Seal

Project Number: 186302219			
File Name: 04104-al.dwg			
BAL	GAC	BAL	07.11.15
Dsn.	Chkd.	Dsgn.	YY.MM.DD
Drawing No. 1			
Revision	Sheet		

1 of 1

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2010-10-20 01:34PM By: gcates