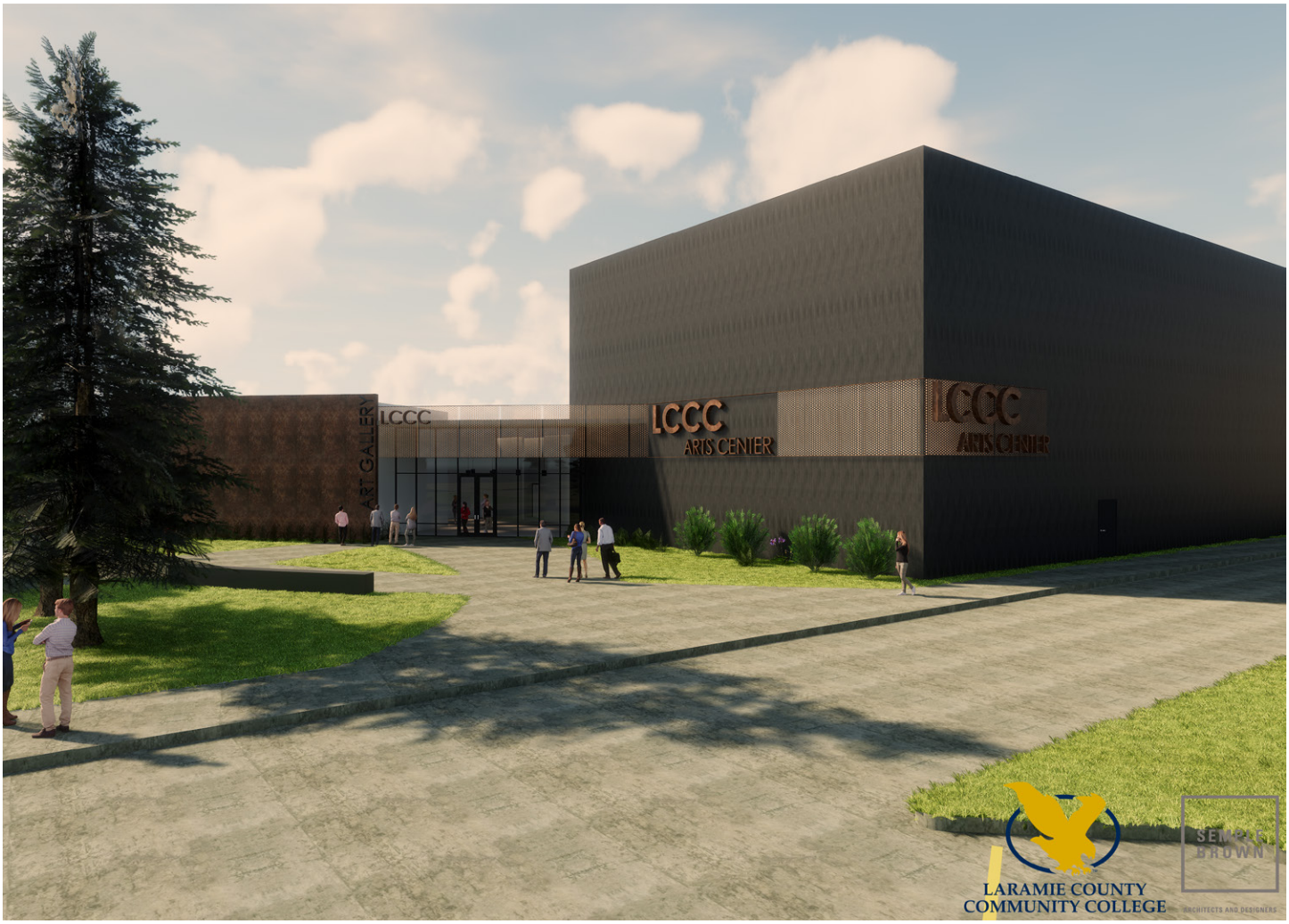

LEVEL II FEASIBILITY STUDY
FINE & PERFORMING ARTS EXPANSION AND RENOVATION

9.15.17

SEMPLE
BROWN

ACKNOWLEDGMENTS

Laramie County Community College

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Rick Johnson, Vice President of Administration and Finance
Jermyn "Bill" Zink, Director, Physical Plant
Daniel Powell, Dean of Arts and Humanities
Erin Bauer, Arts and Humanities Faculty
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BHA Design, Inc: Roger Sherman, Douglas Elgar
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Steil Surveying Services: Jeff Jones
Strata: Brent Wilkins

EXECUTIVE SUMMARY

Laramie County Community College proposes to renovate and expand the existing Fine and Performing Arts facilities on its Cheyenne campus. The proposed building would address LCCC's shortage of assembly/exhibit space, as identified in the campus's most recent master plan in 2016. That study quantified a space deficit of 10,375 sf in this category. The master plan recommended the addition of 12,000 gross square feet to the campus for this purpose.

The campus's current venues for large groups include:

a.) The Playhouse: a thrust configuration black-box theatre seating up to 90 attendees.
b.) The Center for Conferences and Institutes: a suite of conference rooms seating up to 300 in its largest configuration. This facility is a flat-floor design.
c.) The Pathfinder Ballroom: divisible meeting space with kitchen in the Pathfinder building. This is a flat-floor design.

Following review of the Level 1 study and the Master Plan, LCCC has re-directed the focus of the current Level 2 study to renovation and expansion of the existing Fine Arts Building instead of constructing a new stand-alone facility. The rationale for that refinement in direction is:

a.) To constrain the capital cost of the project;
b.) To avoid splitting the Fine and Performing Arts programs into multiple buildings, which created operational problems;
c.) To concentrate funds on the existing Fine Arts Building, portions of which have not been renovated since its original construction in 1981.
d.) To allow the existing building and the added space to better support each other as an integrated facility.

The proposed location for this project is the north side of the Fine Arts Building, for the following reasons:

a.) Suitable footprint of land available;
b.) Proximity to available parking in the evenings, when most performances and assembly events will be held;
c.) Ability to share support facilities such as loading, warm-up rooms and dressing rooms;
d.) Proximity to utility service;
e.) Opportunity to create an upgraded appearance for the north side of Fine Arts and to create a highly visible entry from the north.

The new construction is limited to the performance hall, its lobby and restrooms and the new Gallery. The combination of these spaces together creates a "public event" zone for LCCC to host performances, exhibits, assemblies and receptions that raise the College's profile and serve the community. The Gallery opens into the lobby so that both spaces can be used to host receptions and events.

The estimated cost of this project, including performance equipment and soft costs, is $14 million.

PROPOSED SITE OWNERSHIP

The proposed site is owned by Laramie County Community College.

PERMITS REQUIRED FOR CONSTRUCTION

Construction permits from Laramie County.

ENVIRONMENTAL CONSIDERATIONS AND CONSTRAINTS

No such constraints have been identified.

LEGAL CONSTRAINTS TO DEVELOPMENT

No such constraints have been identified.

ALTERNATE SOURCES OF SPACE TO PURCHASE AND LEASE

There are no potential buildings suitable for re-use for these purposes on the campus. Moving the visual and performing arts programs off the campus is not desirable due to the programmatic and schedule disruption of moving students off-site for instruction.

EXECUTIVE SUMMARY

SCHEDULE

A facility of the size and complexity described in this study would typically require a year of design time, with 16-18 months of construction time. That may change to deal with the challenges of displacing the current occupants.

PRIOR PLANNING CONTEXT

In 2006, LCCC engaged Semple Brown Design to revise the 2003 Campus Master Plan and provide implementation plans for a Health Sciences Center (since constructed), a campus central utility plant (since constructed) and a Fine and Performing Arts Center. In 2011, the LCCC Campus Master Plan identified a site for a Fine and Performing Arts Building and designated it as one of the campus's most "necessary and desired" facilities. In 2012, the LCCC Building Forward Facilities Plan identified this project as Priority 4; the projects preceding it have all been completed or are under construction.

In 2014, LCCC President Joe Schaffer convened an Arts and Humanities Task Force to evaluate the programmatic needs of those academic programs.

In 2015, LCCC re-engaged Semple Brown Design to provide programming and conceptual design services for a Level 1 Reconnaissance Study. The Level 1 study anticipated the construction of a new stand-alone facility in conjunction with the renovation of existing space.

In 2016, LCCC completed a new Master Plan, which is provided on the following page.

In 2017, LCCC commissioned Semple Brown Design to perform this Level 2 Feasibility Study.

The current Clay Gallery in the Western Fine Arts Building.

LEGEND

1. New Residential Quad
2. Campus Crossroads (Signature Open Space)
3. Vehicular Drop-off
4. Flex Tech Courtyard
5. Board Room Entrance

- Sidewalks
- Roadways/Parking Lots
- Plaza/Node/Pedestrian Crossing
- Existing Campus Building
- New Academic Building/ Building Addition
- New Residential Building

2017 CAMPUS MASTER PLAN
A potential site for expansion of the fine and performing arts program was located to the south of the existing building in the 2017 Campus Master Plan.

PROGRAM DESCRIPTION

Mission and Vision: The Arts at LCCC

Arts and humanities enhance life and enrich society. Through arts and humanities programming at Laramie County Community College (hereinafter "LCCC" or "the College"), we foster innovation and creativity and meaningfully engage and interact with the world and each other. We explore and challenge boundaries and strengthen our capacity for empathy and access to diverse perspectives.

Goals of the Arts at LCCC
Recognizing the value of the arts, and the commitment LCCC has toward embracing these values through rich and diverse arts-based programming, the College has established the following goals for our Fine and Performing Arts programs, services and activities:

- To develop professionally viable artists.
- To promote a healthy economy and a vibrant society.
- To create opportunities for the community to observe, consume, participate and contribute to a culturally enriched society and an appealing quality of life.
- To create opportunities to encounter and appreciate a broader world.
- To empower communication: visually, aurally, in writing, through languages and media, with respect to varied cultures.
- To create opportunities to encounter, connect, inquire, and enjoy lifelong learning through the study of humanities, languages and philosophy, and to examine the power of communication in arts and letters.
- To offer academic programs leading to degrees, transfer opportunities, and careers in the arts.
- To offer an arts and humanities-enhanced general education curriculum that develops and enriches an appreciation for the arts and diverse forms of expression.
- To offer opportunities for students and the community to participate in arts activities and experience arts expression through cultural events.

Vision for the Building:
The renovated and expanded Fine Arts Building will provide increased opportunities for our community and individuals seeking a career in the arts and enrich the cultural fabric of Laramie County. This educational and performance center will meet the needs of Laramie County by creating alternative performance spaces absent or over-programmed within the community, and amend the limited and aging instructional and performance facilities on campus, fostering the interdisciplinary and critical thinking necessary in twenty-first century industrial practices.

Goals for the Building
Through the efforts of the project task force, and in broad consultation, the following goals for the Fine Arts Building have been established:

- To continue our mission to enrich the lives of students through artistic expression, cultural awareness, and empowered communication.
- To enhance connections between our community, students, and campus.
- To offer a collaborative environment for focused, programmatic learning and general education coursework.
- To attract local, regional, national, and international talent to Cheyenne.
- To retain our young adults who relocate to other communities that provide programs and opportunities which are currently limited in Laramie County.
- To accommodate growing programs and the infrastructure they require.
- To offer a progressive, innovative and interdisciplinary educational space for current and future arts and humanities programming at LCCC.
- To provide cultural events venues for performances and productions offered to the campus and community.

DESCRIPTION OF ACADEMIC PROGRAMS

Music - Associate of Arts

The LCCC Music Department allows for student flexibility with five concentrations: Music; Instrumental and Vocal Performance; and Instrumental and Vocal Education. The Music Department has a complement of ensembles that both support the curriculum and allow for community engagement. The major ensembles include Wind Symphony, Collegiate Chorale, String Ensemble, Jazz Ensemble, and Guitar Ensemble. Elective groups include Brass Ensemble and a highly selective vocal chamber group, Cantorei who has been extended a special invitation to perform at Carnegie Hall later this year. The music department continues to tour and entertain the community and beyond with its accessible diverse groups and commitment to musical quality.

Theatre - Associate of Arts

The current iteration of the LCCC Theatre Program began in 2005 with the hiring of Jason Pasqua. In the intervening ten years, the program has grown not only in terms of numbers, but in the quality of the productions on offer. LCCC is a participant in The Kennedy Center/American College Theatre Festival, providing opportunities for networking, exposure to varied and more advanced ways of working, and continuous improvement in pursuit of both educational and artistic excellence. LCCC Theatre students have gone on to professional work in Los Angeles, BA and BFA programs in Wyoming, Colorado, and Washington State.

Art - Associate of Arts

The LCCC Fine Arts Program was initiated in 1969, and is designed to serve a broad range of students, including both traditional degree seeking students as well those seeking life enrichment or professional development. The intent of the Fine Arts Program and related course offerings is to educate students in the fundamentals of design principles, techniques, and conceptual content within works of art. The degree granting program culminates in an Associate of Arts degree that is designed for transfer to a four-year program, while an array of additional course offerings are available for general education and enrichment purposes. The art department organizes a thriving visiting artist program that attracts and engages students and the community. Additionally, the significance of the art program in the community is evident by endowed foundation funding for additional artistic offerings.

The current Playhouse facility.

PROJECT NEED

NEED FOR THE PROJECT

The Fine and Performing Arts Building would benefit both the LCCC campus and Laramie County community by creating new performance and programming spaces for the publicly-focused Fine Arts programs and, through building renovation, designing updated and technologically savvy spaces for the languages, humanities, and media programming within the existing Fine Arts Building.

Since 2006, higher education has undergone a major paradigm shift from a focus on enrollment to a focus on completion and outcomes. The summary report from the meeting of the American Association of Community Colleges Commissions and Board of Directors, titled The Completion Agenda, A Call to Action (2011) urged institutions that "completion should be made a part of the institution's strategic plan"; "align curriculum with colleges and universities"; and "ensure that transfer is seen as a valid and measurable part of a success rate or completion rate—whether the student takes three credits or 60 credits before transferring" (p.3-4). This shift in focus to transfer and curricular alignment insists that all programs, including those within the fine arts, craft curriculum that will easily transfer in kind and nest within the programmatic framework of a BA or BS at regional universities. This charge is manifested in our own Strategic Plan (Goal 1) and the measures to meet this goal are framed within Policy 2.1 and Procedure 2.1P, which states that "AA and AS degree programs may have a designated major when they include a prescribed sequence and collection of courses...that are part of a documented articulated pathway to a baccalaureate degree at a partnering four-year institution" (p. 2). Currently, none of our fine arts programs can offer the full range of courses necessary to align with the University of Wyoming's programs. Although both music and art are seeking options with universities in Colorado, students receiving Hathaway funding cannot fully take advantage of this scholarship within their home state if they choose to attend LCCC prior to the University of Wyoming. As expected, the enrollment and transfer rates of these programs to UW is lower than other programs across campus. This is harmful for LCCC's enrollment and recruiting, certainly, but is most harmful to students, especially non-traditional students who may need or want to begin their education in a smaller, more local, less costly community college before transferring to the University.

Existing Building Limitations and Hazards:

The Visual Arts, Theater Arts, and Music programs need a new facility to meet basic programming needs and necessary upgrades to ventilation, heating, lighting, and functional spaces that meet coding requirements for ADA compliance and safety. The 2011 facilities Condition Assessment (Appendix B) identified the ADA updates alone at an estimated $432,000.00 to date after adjusting for a 2% increase in cost per year since 2011. The current limitations of outdated ventilation, lighting, safe work space (for large-scale projects), and heating restrict the School of Arts and Humanities from teaching any painting, 2-dimensional, or 3-dimensional courses requiring oil paints, any woodworking as part of sculpture or framing, and any larger-size metalworking beyond jewelry. The lack of scene shop space and storage connected to the Playhouse restricts the college from offering courses in stage lighting and set design. Limitations in courses create gaps within our programming at the freshman and sophomore level that currently inhibit program articulations with the University of Wyoming and limit options in the region. These roadblocks to articulations directly translate into challenges in regards to recruiting, which, in turn, notably impacts enrollment and persistence.

Beyond enrollment and programming factors, the building condition raises genuine concerns for safety. The space limitations of the metals lab both limits the enrollment every semester and presents safety considerations, given the chemical and electrical tool usage necessary. The lack of soundproofing and sound baffling in all practice rooms, classrooms, and performance rooms present notable aural health concerns for students and faculty within the Music program.

The Functionality Index and Assessment within the Facilities Condition Assessment of 2011 ranks the Fine Arts Building at a total score of 65 when the entire building is evaluated. However, the west end of the Fine Arts Building (where all Fine Arts programming is located) has not been renovated since it was built in 1981. The east entrance (classrooms, ITS, faculty and staff offices, the LCCC Foundation) was renovated in 2000. The renovated sections of the building are included in the total score and, logically, raise it. Further, the scores connected to spatial configuration, daylighting, and services are evaluated for general purposes without specific evaluation of acoustics (impacted by ceiling height, aspect ratios, room proportions), daylight (necessary for visual arts), and mechanical/plumbing/IT/AV for fine arts studio spaces. Were these specific evaluations added to the Functionality Index and Assessment, the overall score of 65, which is noted within the "fair" range (50-75) may reduce to a total much closer to the "poor" threshold (25-50).

PROJECT NEED

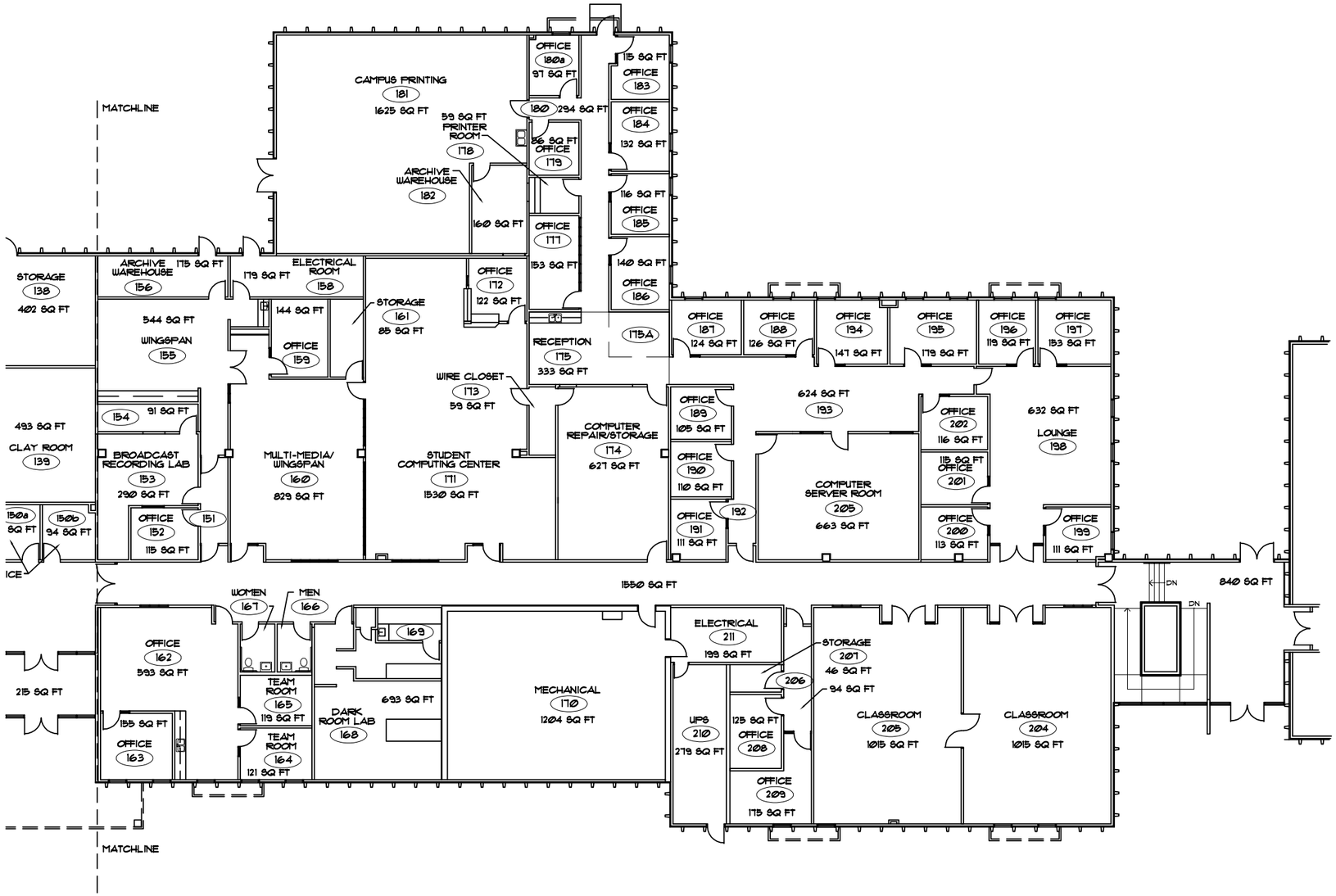
Comparable Facilities at Peer Institutions

- Central Wyoming College in Riverton has the 940 seat Robert A Peck Arts Center Theater and 6,000 sf of gallery space.
- Eastern Wyoming College in Torrington has the 713 seat EWC Auditorium.
- Northwest Community College in Powell has the 500 seat Nelson Auditorium and was recently remodeled to include recording studios and audio technology.
- Sheridan College's Whitney Center for the Arts has recently renovated 12,000 sf and expanded by an additional 48,000 sf. It includes a 422-seat concert hall as well as recital and performance space.
- Western Wyoming Community College has the 527 seat WWCC theater and has identified multiple arts renovations in its 2017 master plan.
- Casper College recently opened a new music building with a 420-seat performance hall. This is in addition to stand-alone visual art and theatre buildings.

The Fine and Performing Arts Building would not only allow for expanded and safer educational spaces for Fine Arts programming, it would create new interactive spaces for the community members of Laramie County. The fourth foundational element of the College Mission is "to enrich the communities we serve through activities that stimulate and sustain a healthy society and economy". The addition of a Fine and Performing Arts building would strengthen the College's ability to fulfill this portion of the mission by expanding opportunities for our community to connect with the college, its students (both lifelong learners and degree seeking), and its supported arts programming. In this respect, the creation of a space is the opportunity to serve our community through that space and its many uses.

The addition of a 400-seat theater acoustically designed to showcase both theater/speaking performances and musical performances would allow for increased student performances for the community, a venue to host LCCC Foundation cultural events and speakers, and available space for larger community/speaker functions that currently exceed either size capacity or booking capacity within our Centennial Room on campus. Currently, there is no theater of this size within the city of Cheyenne, nor does LCCC have a theater larger than 99 seats. There are no existing performance spaces for music on campus. Community members, parents and families of students, and our students themselves must travel to the high schools, local churches, and the Civic Center to see student musical performances.

Although LCCC houses 276 students within the residence halls, there are limitations in the frequency of public transit connecting the community to the campus (noted in the Campus Master Plan, 2011). For our on-campus students, the addition of performance spaces in proximity of their living opens access to the arts as a part of their college residential experience, which may encourage a lifelong love of or educational pursuit within the arts and will certainly add to the on-campus enrichment opportunities we offer our students as part of their collegiate experience.



FLOOR PLAN EAST AREA- SQUARE FOOTAGES

SCALE: 3/64" = 1'-0"

PLAN NORTH

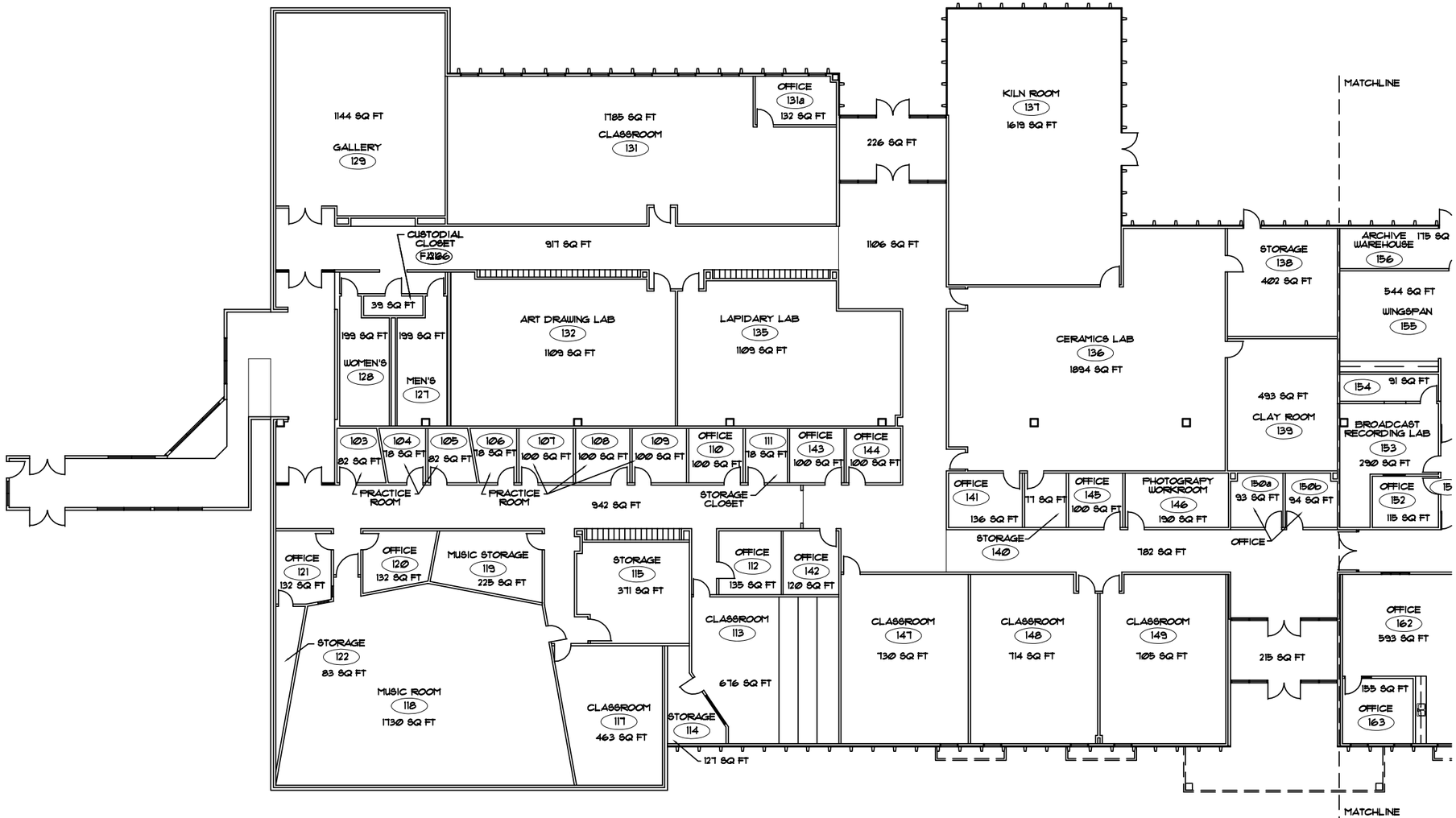
K-D DESIGNS, LLC
1520 LOGAN AVENUE SUITE 2 CHEYENNE, WYOMING 82001
(307) 635-0604

LARAMIE COUNTY COMMUNITY COLLEGE
FINE ARTS
LARAMIE COUNTY, CHEYENNE, WYOMING

DATE
NOV 2011

SHEET#

EXISTING FLOOR PLANS WESTERN FINE ARTS



FLOOR PLAN WEST AREA- SQUARE FOOTAGES

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NOV 2011

SHEET#

SPACE PROGRAM

LCCC Arts/Humanities Space Allocation Plan
Expansion/Renovation Scenario

1. Space outside of this project's scope					
	Existing Playhouse			4409 sf	(no renovation this area)
2. EXPANSION SPACE					
	400-seat theater/stage			6678 sf	
	Control Booth			300 sf	
	Gallery			1231 sf	
	Lobby/Restrooms			2595 sf	10804
3. FINE/PERFORMING ARTS SPACE					
	Music Ensemble Studio			1832	
	Instrument Storage			363	
	Theatre/Arts Storage			575	
	Piano Lab			751	
	Practice Rooms			960	
	Music Library			99	4580
	Theatre Ensemble Classroom			2347	
	Dressing Rooms			663 sf	
	Wardrobe/Costumes			0 sf	3010
	Ceramics Studio			2862	
	Kiln Yard			1626	
	2D Studio			2329	
	3D Studio			1203	
	2D Studio 2			2315	10335
	Dean's Suite			1046	
	Offices				
	Faculty	11	120	1320	
	Bullpen			311	1631
4. EXISTING ACADEMIC SPACE					
	Wingspan/Multi-Media			2317	
	Computer Classrooms (2)			1469	
	Tiered Classroom			692	4478
5. RELOCATED SERVICE/SUPPORT SPACE					
	Information Technology			746	
	PR			3044	3790
6. EXISTING SERVICE/SUPPORT SPACE					(limited renovation this area)
	Foundation/IT			3805	
	Storage			697	
	Mechanical			1305	5807

27824	net SF FA	27824	gross SF FA
10804	net SF NEW	10804	gross SF NEW

CONCEPTUAL DESIGN NARRATIVE

PROJECT DESCRIPTION

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The proposed location for this project is the north side of the Fine Arts Building, for the following reasons:

a.) Suitable footprint of land available;

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The new construction is limited to the performance hall, its lobby and restrooms and the new Gallery. The combination of these spaces together creates a "public event" zone for LCCC to host performances, exhibits, assemblies and receptions that raise the College's profile and serve the community. The Gallery opens into the lobby so that both spaces can be used to host receptions and events.

The proposed renovation includes significant re-organization and selective re-locations of functional areas within the Fine Arts Building in order to make the expanded facility work as an integrated whole. The functional rational for the reorganization is driven by the following priorities:

1.) Create a "backstage support zone" adjacent to the stage of the new performance hall. The spaces in this zone include the music and theatre rehearsal studios, practice rooms and dressing rooms. These spaces are critical support facilities for the stage and need to be adjacent to it. They also need loading access from the loading yard.

2.) Maintain the existing IT and Foundation offices in their current locations. The IT infrastructure of the building would be expensive to move, so the conceptual plan keeps it in place.

3.) Relocate PR and the printing shop to a location that allows effective collaboration with the Foundation and institutional advancement.

4.) Relocate Wingspan/Multimedia and computer classrooms to a location that is visible to the pedestrian spine of the campus.

CONCEPTUAL DESIGN NARRATIVE

Because the following spaces in the Fine Arts building are programmed to remain in place, they are anticipated to receive less-than-comprehensive renovation, but will benefit from mechanical and electrical system upgrades:

- IT and Foundation office suites
- Arts Dean's suite
- Existing mechanical room
- Existing mechanical room
- Existing shared tiered classroom
- The kiln yard
- The restrooms at the west end of the building. The entrances to these restrooms will be modified for ADA clearances.

The existing theater playhouse and its support spaces are not included in the renovation scope of this project.

The proposed components of the expanded building are:
400-seat performance hall: this venue is planned as a multi-disciplinary facility, supporting music performance, guest artists, campus speaker series and other academic and community-related performances and assemblies. It should include enough stage space for storage of an orchestra shell, and be designed and equipped for high acoustical quality. Its stage equipment inventory can be expanded over time to expand its rigging and lighting capabilities.

Support spaces: the control booth and loading area should support both campus and community programming.
Gallery: the relocated Clay Gallery should be located adjacent to the lobby of the facility. The walls of the Gallery should be reinforced to support hanging works, and provide appropriate lighting and media support for art of a wide variety of media and disciplines.

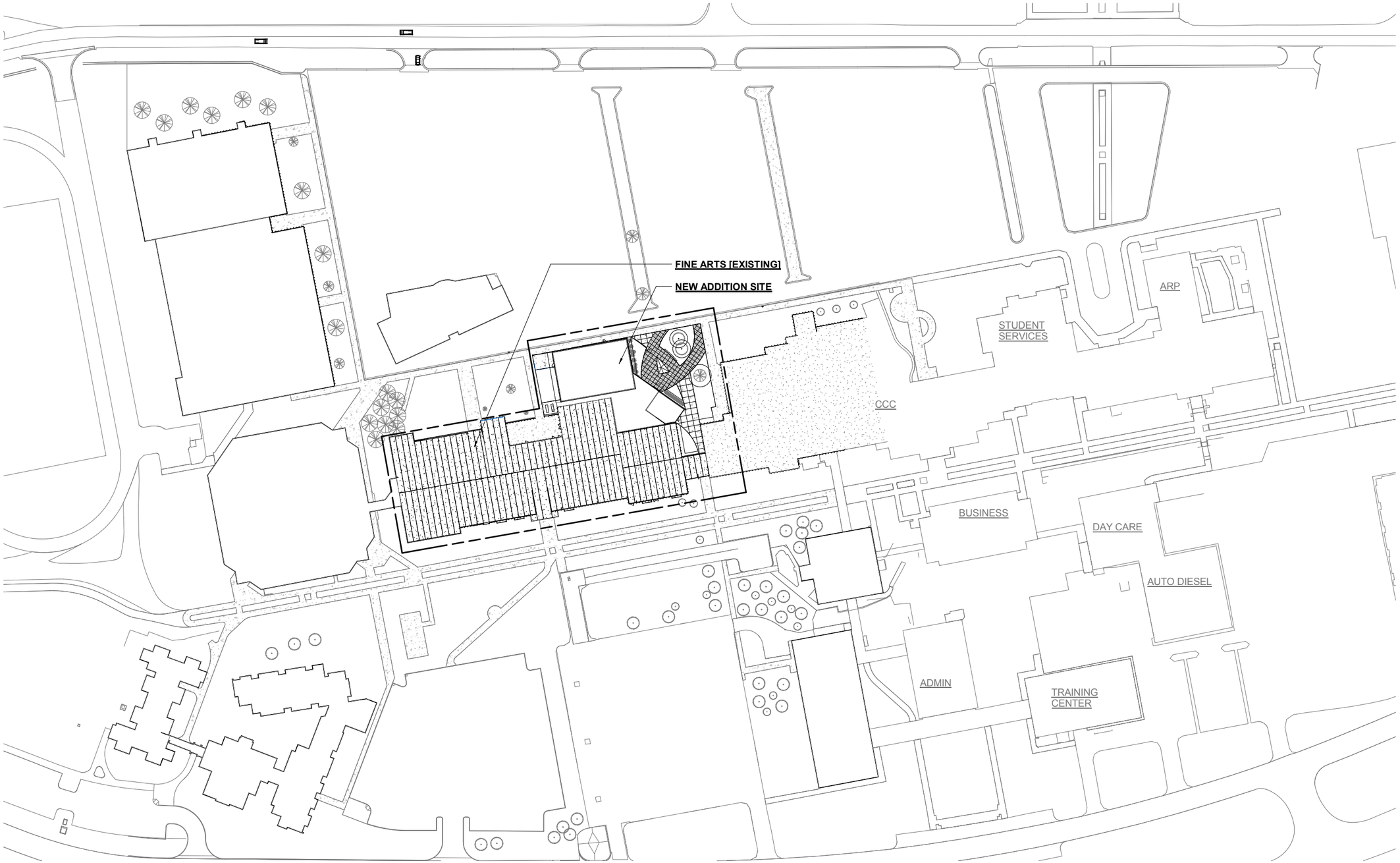
Music space: in order to make the performance hall available for performance use, the music program requires appropriate instructional and rehearsal facilities separate from the main stage. Those include a large, high-volume rehearsal studio with acoustical treatment, a piano lab, music technical lab, and support/storage spaces.

Theatre space: the theatre program likewise requires space apart from the performance venue in order not to occupy the main stage as a classroom/rehearsal space. The theatre ensemble classroom should support both instruction and rehearsal, and the dressing rooms will be utilized both as production support space and as instructional spaces for makeup and costume design and fabrication.

Visual Arts space: the planned visual arts spaces essentially relocate existing spaces. In general, they include industrial finishes and materials, with higher volume and clear spans. Natural light (north) should be provided for all but the digital studio, and the ceramics studio requires loading access/exterior egress and a dedicated, covered kiln yard.

The offices planned are enough for the faculty members of the academic programs represented in the facility, plus a bullpen for adjunct faculty members.

PROPOSED SITE PLAN



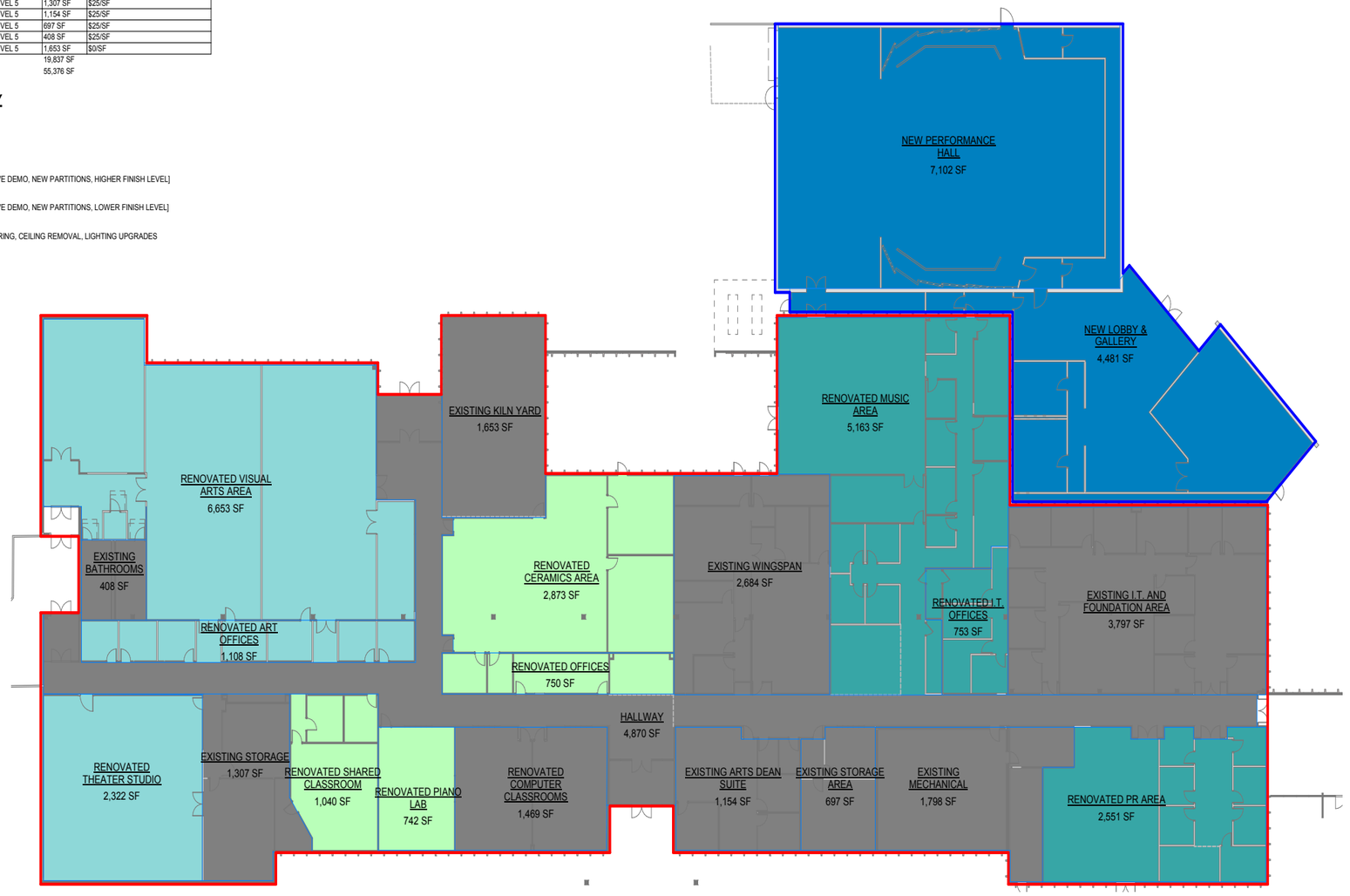
RENOVATION COSTS AREA PLAN

Renovation & Addition Areas			
Name	**Scope Level**	**Area**	**Cost per SQ FT**
NEW PERFORMANCE HALL	LEVEL 1	7,102 SF	$600/SF
NEW LOBBY & GALLERY	LEVEL 1	4,481 SF	$400/SF
LEVEL 1		11,583 SF	
RENOVATED MUSIC AREA	LEVEL 2	5,163 SF	$225/SF
RENOVATED PR AREA	LEVEL 2	2,551 SF	$150/SF
RENOVATED I.T. OFFICES	LEVEL 2	753 SF	$150/SF
LEVEL 2		8,467 SF	
RENOVATED VISUAL ARTS AREA	LEVEL 3	6,653 SF	$150/SF
RENOVATED THEATER STUDIO	LEVEL 3	2,322 SF	$150/SF
RENOVATED ART OFFICES	LEVEL 3	1,108 SF	$150/SF
LEVEL 3		10,083 SF	
RENOVATED CERAMICS AREA	LEVEL 4	2,873 SF	$75/SF
RENOVATED SHARED CLASSROOM	LEVEL 4	1,040 SF	$75/SF
RENOVATED OFFICES	LEVEL 4	750 SF	$75/SF
RENOVATED PIANO LAB	LEVEL 4	742 SF	$75/SF
LEVEL 4		5,405 SF	
HALLWAY	LEVEL 5	4,870 SF	$25/SF
EXISTING I.T. AND FOUNDATION AREA	LEVEL 5	3,797 SF	$25/SF
EXISTING WINGSPAN	LEVEL 5	2,684 SF	$25/SF
EXISTING MECHANICAL	LEVEL 5	1,798 SF	$25/SF
RENOVATED COMPUTER CLASSROOMS	LEVEL 5	1,469 SF	$25/SF
EXISTING STORAGE	LEVEL 5	1,307 SF	$25/SF
EXISTING ARTS DEAN SUITE	LEVEL 5	1,154 SF	$25/SF
EXISTING STORAGE AREA	LEVEL 5	697 SF	$25/SF
EXISTING BATHROOMS	LEVEL 5	408 SF	$25/SF
EXISTING KILN YARD	LEVEL 5	1,653 SF	$0/SF
LEVEL 5		19,837 SF	
TOTAL SQ. FT.		55,376 SF	

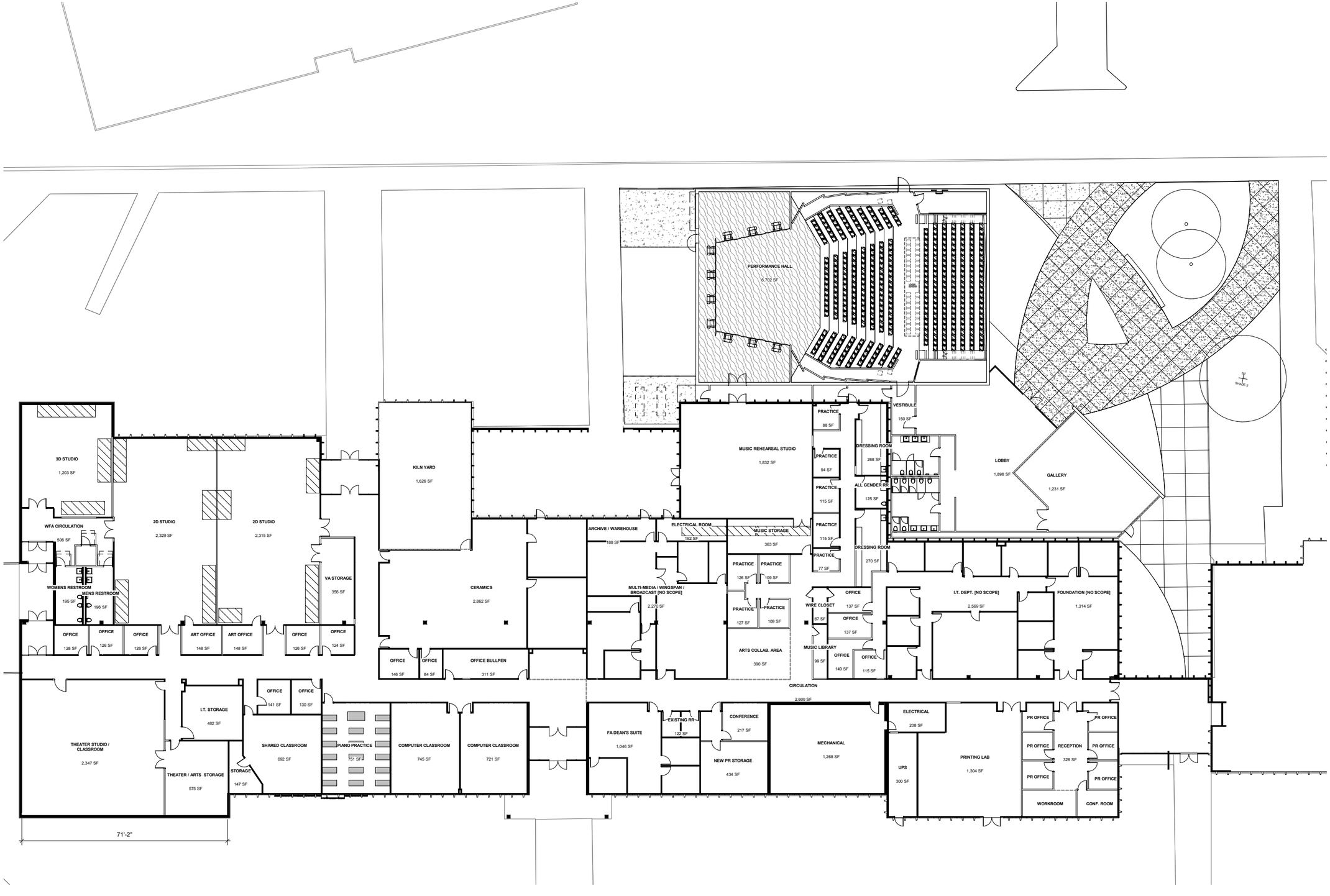
RENOVATION AREA PLAN KEY

SCOPE LEVELS:

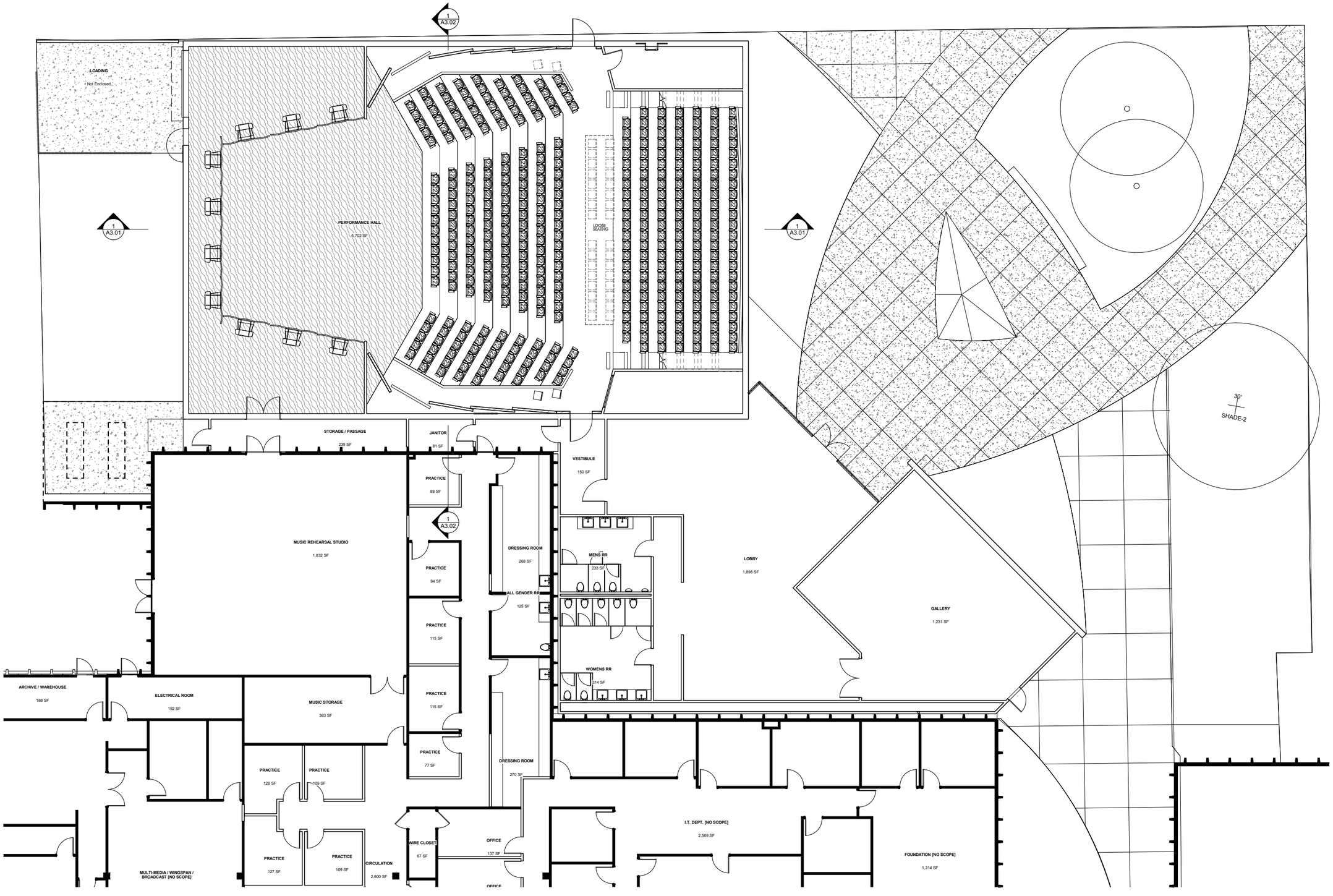
- LEVEL 1 - NEW CONSTRUCTION
- LEVEL 2 - FULL RENOVATION [EXTENSIVE DEMO, NEW PARTITIONS, HIGHER FINISH LEVEL]
- LEVEL 3 - FULL RENOVATION [EXTENSIVE DEMO, NEW PARTITIONS, LOWER FINISH LEVEL]
- LEVEL 4 - FINISHES ONLY: PAINT, FLOORING, CEILING REMOVAL, LIGHTING UPGRADES
- LEVEL 5 - LIGHTING UPGRADES ONLY

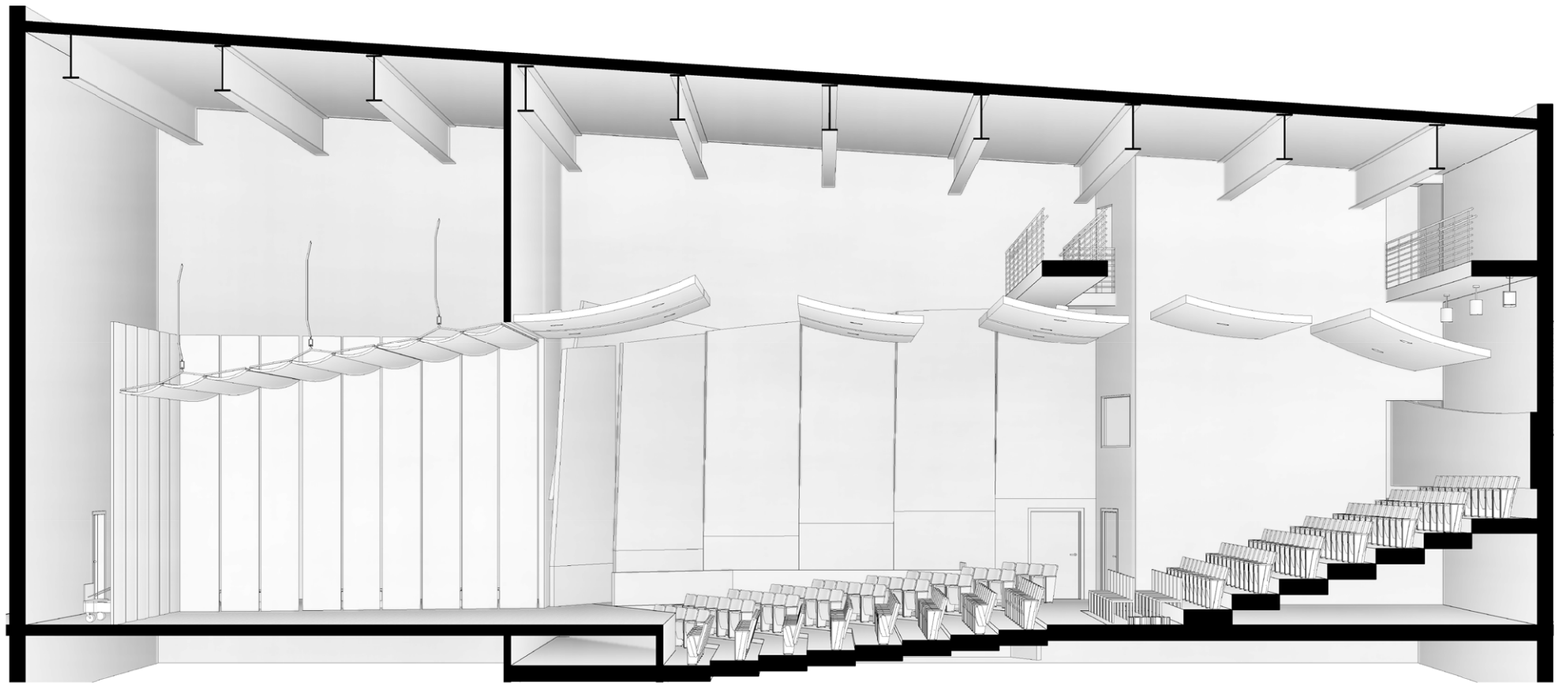


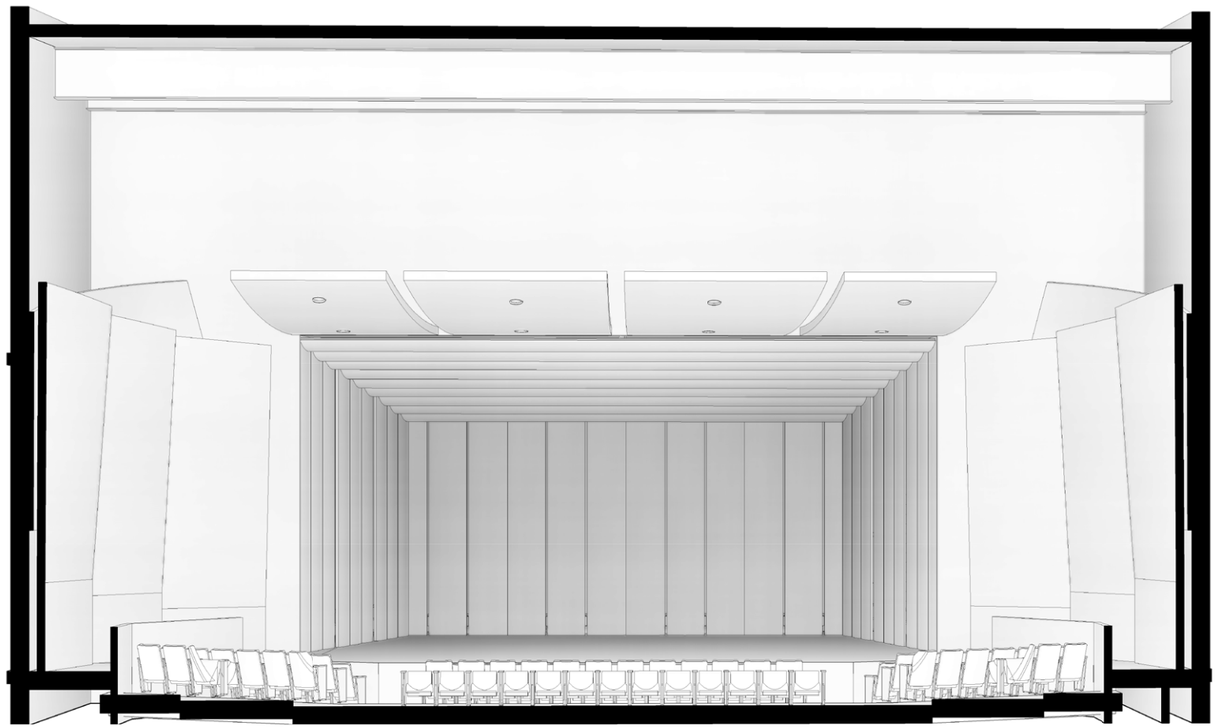
FINE ARTS OVERALL PLAN



FLOOR PLAN - NEW PAC







RENDERINGS


LCCC
LCCC
LCCC
ARTS CENTER
SEMPLE BROWN
ARCHITECTS AND DESIGNERS
LARAMIE COUNTY COMMUNITY COLLEGE


LARAMIE COUNTY
COMMUNITY COLLEGE
SEMPLE
BROWN
ARCHITECTS AND DESIGNERS

COMPONENT SPACE DESCRIPTIONS

Unique or Special Features
Facilities for instruction, production and exhibition of visual and performing arts works have a number of specialized requirements. The unique and special features are noted here, grouped in like categories.

Systems: The mechanical and electrical needs of an arts complex are very demanding, and in some cases have competing or contradictory characteristics:

Security Control: This facility will house not only expensive art works, but also extensive inventories of equipment and instruments. In order to store and exhibit many traveling art shows, most galleries must provide evidence of suitable security systems and procedures. The building will also be used for long periods outside of regular class hours for performances, rehearsals, and studio use. Providing a sense of security both for community members and for students after dark will be required.

Acoustical Control: Mechanical noise is one of the chief intrusions in a theatre or music performance space. Providing the correct equipment, duct routing and silencing is appreciably more expensive than the usual systems.

Specialized Exhaust: A significant number of the spaces in this facility require special exhaust provisions for dust, paint fumes, chemicals, smoke and other environmental hazards.

Communication Systems: In addition to standard requirements for academic technology infrastructure, arts buildings require capacity for performance-specific systems such as intercoms, monitors, lighting and sound systems, and so forth in the theatre and recital hall as well as the gallery spaces.

Specialized Lighting: Appropriate protection and display of gallery art requires non-standard lighting equipment that reduces ultraviolet damage and provides accurate color rendition. Scenery and costume construction spaces similarly require accurate color rendering capability.

Systems Routing: Several key spaces in the building must be kept clear of plumbing and ducts. For instance, water pipes of any kind cannot run through the Gallery's secure storage area, to prevent the possibility of water damage in the event of a plumbing problem. Providing fire control for this area without the potential for accidental sprinkler activation is critical. The noise of plumbing operations should be separated from the theatre and recital hall.

Restrooms: The restroom capacity of this type of building is sized to meet the needs of peak capacity (a full audience) during a compressed period of time (intermission). That requires a higher fixture count than usual.

Structure: These facilities also have unusual structural needs, including:

Large Volume: One of the key design prerequisites of arts studio and performance space is adequate volume, most typically reflected as ceiling height. Almost all of the spaces identified in this program plan are taller than comparable academic facilities. This allows for working with scenery and sculpture, large-scale works of visual art, and projection of film and video. In addition, it provides the reverberance required for quality musical performance. In addition to height, a number of these spaces require long spans without columns in order to provide appropriate sightlines.

Wall Strength: A Gallery may hang art works weighing up to 500 pounds on its walls. The loading requirements of the theatre grid/ catwalks are similarly high.

Separation: One of the most effective means of providing acoustical quality in a building of this type is to separate noise-generating areas from the rest of the building. To be effective, this requires redundant structure and isolated floor slabs, the use of hallways and intertwining Spaces.

Doors: In order to move equipment, scenery and sculpture within the facility, large doors and frames (most with acoustical seals) will be necessary.

Slab Complexity: The resilient floors of the Black Box Theatre, rehearsal room, art gallery and stages require depressed slabs. Many of the floor slabs require drains in studio and shop areas.

Technical/Rigging Circulation: Most theatre venues include some means of providing circulation to performance lighting and rigging equipment. These may include catwalks, ladders, tension grids, gridirons or related structures. In an educational facility, these areas have additional importance, because they must serve as an experiential classroom for technical theatre students. These structures must often support considerable loads – including lateral and uplift loads as well as live weight. They must provide appropriate safety in terms of handrails and/or safety chains for users, and may need some means of restricting access – locked doors or safety cages.

Finishes: Finish levels within these facilities range from industrial (for shop and fabrication areas) to highly finished (for lobbies and other public areas). Among the key considerations:

Open ceiling structure: In order to obtain as much ceiling height as possible, dropped or suspended ceilings are generally not used, even in classroom spaces. This may require the provision of other absorbent materials to control noise.

Concrete floors: Movement of scenery and sculptural elements, as well as numerous wet areas mediate against carpeted floors in many of the public areas of the building.

Clay Gallery

The Gallery consists of space specially designed to support exhibits of art and providing expansion to the lobby for special events and lobby functions.

- Operational Characteristics
- The entire gallery should be wired for media infrastructure (power, digital network, coaxial cable) throughout, including floor boxes or troughs, to anticipate the temporary construction or placement of exhibit walls within the space. The space also needs wiring for a public address/music playback system.
- The walls of the space should be able to structurally support heavy weight.
- The floor should be able to withstand the rolling of heavy sculptures on dollies. A concrete floor is requested. The ceiling should be at least 16 feet high and clear to the bottom of structure and lighting.
- Aesthetic: Functional, simple and straightforward. This space is the background to the art, not the foreground.
- Acoustics: The space should include some absorbent surfaces to calm reflections of foot traffic and ambient noise.
- Operation: Gallery needs to be able to function as a stand-alone facility with its own hours, separate security system, etc.
- Loading dock with access to the storage and gallery. Dock security and cleanliness must be maintained if the dock is shared with other programs in the building.
- Storage shall be provided in accordance with the program.
- Operable track wall to lobby.
- Doors linking gallery to choral instruments.
- Doors linking gallery to outside sculpture space.
- Blackout capability.
- Both incandescent and halogen light shall be provided.
- North light would also be preferred.

Lighting

The gallery lighting shall consist of LED light, both direct and indirect. For track and background lighting, this system shall be dimmable.

COMPONENT SPACE DESCRIPTIONS

Instrument Rehearsal Studio

This instrument rehearsal studio is used for instruction and rehearsal in music and performance, directing, teaching, and sectional practice/voice training, etc. The wood floor is a visual upgrade as a performance space for small ensembles. The storage space allows storage of rehearsal props and costumes so that multiple groups can use the room each day.

This space is the primary music rehearsal venue. This provides scheduling flexibility by keeping rehearsal activity out of the performance venue until just before performance. This studio should also be capable of simple performance activity on its own, allowing for the presentation of class projects, etc., without having to occupy the Concert Hall. Incorporation of a bleacher wall, sinks, a simple lighting grid, and a sound/light lock allows for establishment of a performance space.

This space is also a primary classroom, provided with a teaching wall. The flat floor allows for use of loose tablet armchairs for class instruction or clearing the floor for instrument rehearsal.

Necessary technical equipment for productions can be brought in on a temporary basis from the building inventory. Circuitry and power for lighting, sound and digital systems will be accessible in multiple locations in the room.

Operational Characteristics
- Great acoustics, double height room.
- The room will have a four button architectural preset lighting system (ex. Unison or similar) to allow for instrument rehearsal, performances, lectures and classes.
- Storage area.
- Simple performance and rehearsal use.

Fixtures, Furnishings & Equipment
- Smart Classroom teaching system, direct purchase, built in to roll able lectern.
- Smart board.
- Plasma / LCD screen.
- Flush mounted overhead document reader.
- Computer screen and keyboard.
- Campus internet connection.
- White board.
- Music board.
- Blackout blinds.
- 55 Wenger orchestra chairs and music stands.
- Conductor's variable height podium.

Performance equipment
- Removable orchestra risers (can double for Concert Hall).
- Adjustable acoustic draperies.
- Record and playback sound system.

Dressing Rooms

Guest Artist/Principal: These rooms provide appropriate sequestered space for 1-2 guest artists, solo performers, conductors and lecturers, and will meet actor's equity standards.

Supporting/Chorus: These rooms provide appropriate space for up to 6-8 performers each. Each supporting/chorus dressing room shall have white boards for teaching make up and hair and to enable the room to be an impromptu classroom. In addition, the instrument rehearsal room shall have some facilities to allow foe orchestra changing. There shall be a sink and full length mirrors.

All dressing rooms are to be ADA accessible. Each dressing room has an external bulletin board for messages and allocations.

COMPONENT SPACE DESCRIPTIONS

Internally, there is adequate room for Z racks with shelves above. Each makeup station is 18" deep with a 4" backsplash, full mirror (with side bulletin board stars only). Located at the entrance to each dressing room is a light switch controlling the incandescent illumination. A switch at each station controls makeup lights. All room lighting is to be monitored and controlled by a motion detector with switching to enable automatic turn off after five minutes of no movement. Seats are fully adjustable in height. All rooms are provided with a page/show relay station in order to monitor the performances onstage. The restroom and shower facilities have been centralized at the main level to enable use by performers and technical staff and students of the facility.

Operational Characteristics:

- Floor space for Z racks (costume racks).
- Color corrected lighting for makeup stations.
- Page show relay and stage monitoring.
- Hat storage area.
- Coat hooks.
- Presentation wall for teaching.
- Assignment board.
- Notice board outside each room (pin/white board).
- Secure storage lockers for performers.
- Color corrected lighting for makeup stations.
- Communications link to stage manager.
- Guest artist dressing room with personal lavatory all to be ADA accessible.
- Men's and women's lavatories and shower, are to be ADA accessible.
- Floor: Soft, warm carpet for bare feet.
- Two wash hand basins in each large dressing room.

Fixtures, Furnishings & Equipment

- Full length mirror.
- White board.
- Pin board area.
- 48 variable height seats.
- Six trash cans.
- Couch and single arm chair with coffee table.

Piano Lab

The lab shall have LED light, both direct and indirect. Power shall be in walker ducts in the floor.

Fixtures, Furnishings & Equipment

The room shall be equipped with:

- Tack board.
- Desks and chairs as required.
- Smart Classroom teaching system, direct purchase, built in to roll able lectern.
- Smart board.
- Plasma / LCD screen.
- Flush mounted overhead document reader.
- Computer screen and keyboard.
- Campus internet connection.
- White board.
- Music board.
- Black out blinds.

Performance Equipment – Not Applicable

Faculty Offices

The faculty offices are all located together to provide central access to support facilities. Proximity to the main entrance is convenient to faculty, students and/or community members coming directly to the offices.

The offices should have appropriate materials on all surfaces to control acoustics.

Appropriate and controllable lighting is necessary.

Fixtures, Furnishings & Equipment per office
- Desk.
- (2) chairs.
- Adjustable height shelves.
- (2) filling cabinets.
- Trash can.

Practice / Individual rehearsal spaces
Appropriate acoustical treatment with good sound isolation and attenuation on ductwork.

Fixtures, Furnishings & Equipment
- Wenger instrument chairs.
- Wall mount mirror.
- Trash can.

Ceramics

LCCC's visual arts program benefits from some of the state's premiere facilities in ceramics. The ceramics facility is large (one of the largest in Wyoming), has access to outdoor loading and firing space, and has a significant amount of storage. The modest changes proposed for the ceramic lab include converting two adjacent office spaces to additional storage and minor finish work including repainting. There is relatively little reason, from an architectural or functional perspective, to significantly alter these spaces.

Drawing/Painting Studio Classrooms

The two-dimensional (painting and drawing) studios do not serve LCCC at the same level of functionality as their counterparts in ceramics and lapidary. Their sizes and proportions do not allow for successful instructional arrangements of students, materials, models and instructor. They have very limited storage capacity for works-in-progress. These spaces have no specialized ventilation for paint fumes, which presents a hazardous teaching and learning environment for the occupants. One classroom has a number of windows located on the north face of the building, providing a reasonable amount of northern light. However, the light fixtures in the room are inadequate for its function as an art studio. The life drawing classroom has no natural light and has similar deficiencies with the light fixtures.

The life drawing classroom does have a small number of track lighting fixtures to provide opportunities to study shade and shadow. Views from the hallway are obscured by paper on the windows of the doors to ensure that nude models are not visible. The studios have simple, but adequate sealed concrete floors, which are stripped and resealed on a periodic basis.

The new area for drawing/painting are proposed to be 'typical' studio space. It is anticipated that gypsum board partitions with an appropriate durable, washable painted surface will be utilized. The walls shall also be designed to provide an appropriate acoustical separation between the studios and adjacent spaces. Acoustic wall panels or ceilings may be utilized to mitigate noise issues that are typically present in areas where hard surfaces are desirable for their durability and ease of cleaning. Impervious

floors such as sealed concrete are ideal, due to the inherently messy nature of drawing and painting.

Natural north light is desirable for painting and drawing areas, as is convenient access to an outdoor painting area. Light fixtures shall be a mixture of direct/indirect for low glare and ambient lighting and will also include appropriately distributed track lighting with different lamping for demonstrating different lighting effects on still life displays. Accurate color rendition will be a priority. Power will be distributed broadly throughout the spaces to further increase lighting opportunities and flexibility in room arrangements.

The lack of height is a deficiency of the existing drawing/painting studios. By removing the suspended grid ceiling, the drawing studios will be able to take advantage of the higher structure in the building and to provide larger volumes in the art studios. In combination with the varied lighting possibilities, the increased volumes of the studios provide greater flexibility for creating still life scenes. Further, by exposing structure, opportunities exist for suspending elements from above to create a wider range of scenarios for display of still life materials.

Other desirable attributes include; plenty of electrical outlets, floor drains, counter space, and industrial sinks with plaster traps and strainers.

Storage space for the drawing/painting studios is at a premium for supplies, materials, and works in progress. The design will endeavor to maximize the amount of storage within the studios without compromising the efficiency of the studio layout. Additionally, lockers will be located outside the studios and will be sized appropriately to accommodate moderately sized canvases, masonite boards, and other substrates for painting as well as providing storage for supplies.

In addition to painting and drawing, the graphic arts program includes silkscreen painting. Toxic chemicals are used in silkscreen processes. For safety reasons, they should be used away from other activities. The proposed outdoor area may also be utilized for cleaning silk screens. Storage may be required in a general storage area with secure provisions for acid storage.

Studio Offices

The lone, existing office is a makeshift space carved out of one of the studios. While it does have a minimal amount of natural light for an art studio environment, the loss of space to storage of books and other teaching resources compromises the room's ability to serve as an effective studio. The two proposed offices are somewhat larger than the existing office to better accommodate the inherent function of the office as a library/resource storage space. The physical characteristics of the office will be similar to the drawing/painting studio classrooms with regard to volume, lighting and materials. Access to the proposed offices can be achieved either through the classrooms or from the hall, addressing a key problem with the existing office where access requires passage through the studio.

Three-Dimensional Studio

The existing Clay Gallery in the Fine Arts Building will be relocated to the building addition for proximity to the new lobby. The space vacated by the gallery is proposed for use as a three-dimensional art studio to expand the program's capabilities beyond the current lapiating that the classroom will find use among many different departments. Aside from proximity to the visual arts and multimedia programs, the key proposed attributes that will make it desirable for art history study are smart technology and an emphasis on multimedia presentation capabilities such as high quality projection and sound. The space can continue to be utilized for receptions and exhibits, as the added elements won't compromise the existing room's fundamental characteristics and the close relationship to restrooms will be retained. However, public use of the space is somewhat compromised due to the lack of a discernible presence on the building's exterior.

Theatre Rehearsal Studio: a new theatre rehearsal studio is proposed for the project that will serve as the primary instructional area for the theatre program, as well as a rehearsal space for productions in the Playhouse and the new performance hall. It is important to minimize rehearsal and class activity in either of the two performance spaces. The new rehearsal studio will feature zoned, dimmable lighting for the performance of scenes and simple performance projects a resilient activity floor suitable for movement instruction acoustical absorption suitable for spoken word plug-in locations for simple lighting and audio control

COMPONENT SPACE DESCRIPTIONS

Performing Arts Center

The new performance venue is programmed as a flexible, multi-disciplinary space that can be enhanced over time by the addition of equipment.

It is a single-volume space to simplify its structure and preserve acoustical characteristics for music. Keeping the height of the stage below 50' allows the building to avoid the requirement for a fire curtain or a deluge system.

The seating is designed in two sections, so that performances with smaller audiences can be concentrated in the forward seating area. The cross-aisle that divides the two sections provides ideal access to accessible seating locations, but can also be filled with additional seating for high-capacity events. The backstage area connects to the music rehearsal studio so that large ensembles can warm up off-stage prior to the performance.

Two catwalks provide safe access to lighting equipment and rigging equipment.

Locations for lighting and sound control are provided both in an enclosed booth and in locations open to the room.

ROOM ACOUSTICS
Definitions and Design Criteria

Room acoustics design generally considers the size of the room in both floor area and volume, the shaping of room surfaces, and room surface treatments in how they reflect, absorb, and diffuse sound. To describe the behavior of sound in a performance space, acousticians have defined various acoustical metrics that can be objectively quantified. In the planning phase, we will focus on the reverberation time (T60) metric, as it has the biggest effect on the size and cost of a hall. During design, it is encouraged to consider additional room acoustics criteria such as early decay time (EDT) and warmth, among others.

Reverberation time (T60) is the time it takes for a loud sound, when interrupted, to decay 60 dB, or essentially until it is no longer audible. A typical description for a room with a long reverberation time is "live;" a room with a short reverberation time is considered "dead." The optimal reverberation time depends on the usage and size of a space. A multipurpose hall creates a challenge, as the optimal reverberation time for drama, speech, and amplified music is different from the optimal reverberation time for unamplified music. A long T60 creates an environment where speech intelligibility is reduced, but provides superior envelopment and blending for music. Conversely, a short reverberation time decreases the subjective quality of an orchestra or choir but provides superior speech clarity and loudness control for amplified events.

Because of the multiple uses of the Performance Hall, we have provided a wide range of reverberation times with a focus on optimizing the hall for music. We recommend that variable acoustic elements be provided that could adjust the reverberation time for speech or theatre vs musical performances.

The acoustical goal in the Music Rehearsal Studio is to provide a proper reverberation time, prevent excessive loudness, and shape the room to eliminate flutter echoes and evenly distribute sound. Note that choral music rehearsal rooms have different acoustical requirements than Band/Orchestra rehearsal rooms. If both are to be rehearsed in a single room, a compromise must be made, or variable elements included. While reverberation time control is important in the Music Rehearsal Studio, providing a sufficient room volume for the quantity of musicians is critical. We estimate that the floor area in the Music Rehearsal Studio will support 80-100 vocalists or 58-68 instrumentalists. To provide this volume, we recommend a minimum ceiling height of 16 feet for choral rehearsal and 18 feet for band/orchestra rehearsal. Note that the actual available ceiling height in this room will be restricted by the approximate 14' height to existing structure, which is not favorable.

The Practice Rooms, Piano Practice, and Theatre Studio/Classroom should have shorter, fixed reverberation times to provide speech and music clarity.

Table 1 below summarizes the recommended reverberation times:

Space	Floor Area	Approximate Volume	T60 Criteria (Sec)
Performance Hall		163,719 ft^3	1.3 - 1.7
Music Rehearsal Studio	2,048 ft^2 80-100 Vocalist 58-68 Instrumentalists	Ideal: 37,400 ft^3 (Note: restricted to 28,500 ft^3 by existing roof height)	0.8-1.3
Practice	85 ft^2 - 119 ft^2	1,000 ft^3 - 1,700 ft^3	0.5
Piano Practice	751 ft^2	10,514 ft^3	0.8
Theatre Studio/Classroom	1,773 ft^2	27,500 ft^3	0.6-0.8

Recommendations and Analysis

In the Performance Hall, thick, well-upholstered seats will account for a significant amount of absorption. Additional fixed absorptive treatments, however, may be required on the walls or ceiling. Fabric covered wall panels, 2" thick, should be considered the minimum quality surface treatment to meet the acoustical goals for pricing. You may prefer to use higher quality surfaces such as acoustically absorptive or diffusive wood or metal products to better fit in with the general aesthetic of the space. Higher quality products will have a corresponding higher cost.

It would be ideal to have variable acoustical elements in the Performance Hall, and possibly in the Music Rehearsal Studio if a wide range of musical genres are rehearsed in the space. This would allow the reverberation time to be changed for each event or class.

There are several recommended options for variable acoustics. If variable acoustics elements are to be physical, there are many possibilities. One option is a packaged, motorized variable absorption system such as acouStac vertical retracting banners by acoustaCorp. Motorized or manually operable horizontally retractable curtains should also be considered, as they are typically less expensive than vertically retracting banners.

You should plan to provide fabric covered wall panels, 2"-4" thick in the Practice Rooms, and Theatre Studio/Classroom. Some music education facilities use packaged, premanufactured practice rooms with built-in electro-acoustic enhancement systems. This option should be priced and discussed with the owner.

The Performance Hall support spaces such as offices, dressing rooms, and the green room may use acoustical ceiling tile to meet an appropriate environment. Lobbies are often a neglected space acoustically. A lively atmosphere is often desired, but incorporating some acoustical absorption could allow space to be useful for social functions such as banquets where speeches may be given. We recommend using absorptive materials for the lobby ceiling finish to help control noise buildup and reverberation. Additionally, speech intelligibility of fire alarms or mass notification systems can be seriously degraded if no treatment is provided, which is a potential code issue.

SOUND ISOLATION

A high level of sound isolation between spaces is important to allow for as much concurrent use as possible in the renovated music and new theatre areas. The design should allow for most rooms to be used simultaneously with minimal interference between spaces.

Please note, our recommendations are based on meeting acoustical objectives only and should be reviewed by qualified personnel prior to implementation.

Design Criteria

Sound Transmission Class (STC) is a single-number rating of the sound transmission performance for a partition tested over a standard frequency range. The higher the STC, the more efficient the partition is for reducing sound transmission between spaces. The STC descriptions are based on the audibility and intelligibility of speech between two spaces, and assume relatively low background noise. Note that the subjective descriptions below are based on typical human speech. Low frequency noise, such as from music, will be more easily audible than speech. The following is a list of STC descriptions which corresponds the single-number STC rating to a subjective evaluation of a typical listener.

STC 30	Normal Speech can be heard and easily understood.
STC 35	Loud speech can be heard and easily understood.
STC 40	Loud speech can be hear and moderately understood.
STC 45	Loud speech is audible, but will wound "muffled."
STC 50	Loud speech is difficult to detect. An occasional word may be understood.
STC 55	Loud speech is faintly audible.
STC 60	Loud speech is inaudible. Music heard faintly.
STC 65-70	Loud music heard faintly.

Low frequency noise, such as bass notes in music, are not fully accounted for in the single number STC rating. The STC design criteria below have been adjusted higher than would be used for speech-only rooms to account for sources such as music and musical instruments. During design, we recommend analyzing partitions separating music spaces using an octave band or third-octave band transmission loss method.

The recommended sound isolation design criteria between spaces is presented in Table 2:

Table 2. Sound Isolation Criteria

Space	to	Space	Minimum STC
Music Rehearsal Studio	to	Practice Room	70
		Chairs/Stands Storage	55
		Performance Hall	70+
		Circulation	55
Practice Room	to	Practice Room	65
		Chairs/Stands Storage	55
		Music Rehearsal Studio	70
		Circulation	55
		Theatre Studio/Classroom	70
Piano Practice	to	Shared Classroom	65
		Computer Classroom	65
		Office	55
		Circulation	55
Theatre Stuido/ Classroom	to	Chairs/Stands Storage	55
		Arts Collab. Space	55
		Ceramics	55
		Circulation	55
		Practice Room	70
Performance Hall	to	Music Rehearsal Studio	70+
		Lobby	70+
		Circulation	70+

Recommended Wall Types

All walls rated STC 50 and higher must be full height, from floor to the deck above, and sealed with acoustical caulk. Care must be taken with penetrations and duct routing to avoid leaks and duct crosstalk. Most of the STC ratings can be met with metal stud and gypsum board wall construction, but we recommend CMU walls in some areas for better low frequency isolation. CMU are needed for STC 70 walls, and should be considered for STC 60-65 walls.

Sound Isolating Doors

Plan to provide three levels of sound isolation for doors throughout the building:

1. Doors with sound seals. These will be standard insulated metal doors or solid core wood doors with applied frame and bottom seals, which will meet STC 30-35.
2. STC 43-45 sound-rated doors. These doors will be used where some additional isolation is required.
3. STC 50+ sound-rated doors. These doors will be used for the loudest or most sensitive rooms.

Sound-rated doors typically have a painted metal finish, but a wood veneer is optional on some doors for an additional charge (typically around 20% more). We recommend doors with cam-lift hinges and fixed bottom seals for more consistent performance with less maintenance, although it can be difficult to meet the ADA opening force requirements with heavier sound-rated doors on these hinges.

STC-rated doors should be obtained from reputable manufacturers such as Overly, Noise Barriers LLC, Krieger, or IAC Acoustics.

MECHANICAL NOISE AND VIBRATION

Mechanical systems noise and vibration attenuation is critical in a performing arts building to allow performances and rehearsals to be conducted without interference from building systems.

Budgeting

For programming and schematic level budgeting considerations, we recommend the Mechanical Engineer plan on duct silencers for both supply and return air paths from AHUs. The ductwork servicing the Multidisciplinary Venue should be budgeted as oversized to allow for low air velocities. Internally lined ducts may or may not be required in all fine arts areas to attenuate airflow noise from turbulent fittings such as terminal boxes, elbows, and takeoffs, depending on the system design and equipment selections. It is prudent to plan for 2" thick internal fiberglass lining on all ducts until calculations are performed during design to determine if it is necessary.

It is assumed at least some HVAC systems will be located over Multidisciplinary Venue support spaces such as dressing rooms and offices. We recommend including budget items for external vibration isolation mounting of this equipment.

Program Design Criteria

Summary of Recommended Design Criteria

The American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)

provides recommended design criteria for maximum mechanical system background noise levels in sensitive spaces. These ratings are provided as a Noise Criteria (NC), a single-number rating that summarizes noise levels across a wide range of frequencies. As the single-number method does not provide information on the subjective quality of background noise, critical spaces should be analyzed using the full frequency spectrum during design.

Table 1 summarizes the criteria that apply to this project:

Space	Noise Criteria (NC)
Performance Hall	20-25
Music Rehearsal Studio	25-30
Small Practice Rooms	30
Piano Practice	30
Theatre Studio/Classroom	25-30

Mechanical Equipment

Rooftop mechanical equipment should be located away from the footprint of sensitive spaces. If rooftop air handling units are located above sensitive spaces, a concrete roof system will be needed. A side discharge unit may be used in place of a down discharge unit to provide space for fan noise attenuation before the ductwork penetrates into noise sensitive spaces. Controlling break-out noise may require the use of double-wall circular duct or lagged rectangular duct.

Adequate space should be provided to allow for ductwork configurations that provide smooth airflow at the inlet and discharge of fan units, thus minimizing turbulent airflow noise. Space should also be planned for installing sound attenuators, suspending equipment and ductwork by vibration isolation hangers, and encasing equipment with sound enclosures to reduce the radiated noise.

Fan-Powered Boxes (FPB) or Variable Air Volume (VAV) devices used to distribute air should be located outside of acoustically sensitive spaces. Terminal boxes with short duct runs to sensitive spaces may need inline discharge attenuators. Dampers should be located as far upstream from diffusers as possible.

Transformers should be located remote to noise-sensitive spaces because of their tonal noise transmission at 120 Hz.

Duct Liner

Internal lining of ductwork with a sound absorptive material provides attenuation of ductborne fan noise as well as turbulent airflow noise. Typically, 2" minimum thick duct liner is recommended for all trunks and main branch take-offs, especially when serving noise sensitive spaces. Liner may be required in both supply and return air ductwork. The total attenuation provided by the duct liner is a function of the length and cross-sectional area of the lined duct.

If fiberglass duct liner is prohibited because of environmental concerns, a significant cost increase should be expected for alternative downstream attenuation methods such as elastomeric duct liner, duct lagging, or double-wall duct.

Diffusers and Grilles

Supply diffusers and return air grilles should be carefully selected so airflow turbulence across the face does not contribute to the background noise level.

Equipment Vibration Isolation

Mechanical equipment should be vibration isolated as recommended in Chapter 48 of the 2015 ASHRAE Handbook – HVAC Applications. For programming purposes, expect that spring isolation curbs will be needed for the AHU/RTU and spring hangers will be needed for fanpowered boxes near sensitive spaces.

All fans, chillers, pumps, generators, compressors, and other rotating equipment should be vibration isolated from the structure with isolation mounts selected for the individual equipment's operating characteristics and the design of the structural system supporting the equipment. The additional static deflection of the building structure because of the weight of the equipment should not exceed 0.25". This criteria should be made clear to the Structural Engineer. Typically, mechanical room floors should be a minimum of 6" thick at their shallowest point.

Inertia Bases

Vibrating and rotating equipment with large start-up transients, high centers of gravity, or large unbalanced forces will require inertia bases. Such inertia bases should have a minimum weight that is compatible with retaining sufficient rigidity. Isolation mounts for the complete inertia base/machine assembly should be secured to the structure at locations of maximum mass and rigidity. The concrete inertia bases should be installed with minimum 1" clearance between the housekeeping pad and the base. The inertia base should be of a 6" minimum thickness with a total weight equal to or greater than the weight of the supported equipment.

Isolation Mounts and Hangers

For conditions requiring isolation mounts or hangers, a minimum static deflection must be established. The effectiveness of the

isolation mounts and hangers is critically dependent on the static deflection. Each isolator must provide the specified minimum static deflection. If the equipment weight distribution is non-uniform at the mounting points, each isolator may require a different design stiffness in order to provide the specified minimum static deflection. Each piece of equipment that requires isolators must be evaluated on an individual basis when sizing the isolators.

Flexible Connections

Flexible connections should be installed in all ducts, piping and conduit attached to all rotating equipment. Flexible connections are particularly important on water pumps, cooling towers and chillers. In general, these flexible connectors should be installed as close to the equipment as physically possible. For high-volume fans, more than one flexible connection may be required because of turbulence in the air flow. Flexible connections in the ductwork should provide a minimum of 2" of flexible separation between sections.

Flexible connections should not be used to correct for misalignment and should not create a concave bulge into the airstream, as these conditions may increase turbulence and regenerated noise. Flexible, double-bellows type, neoprene connectors should be used for all piping-to-equipment connections. All connections should be made with the twin-spheres properly pre-extended, as recommended by the manufacturer. If pressures or temperatures prohibit the use of a neoprenetype connector, a double set of braided flexible connectors is required (one oriented vertically, and the other horizontally, to provide three-dimensional vibration isolation). The length of the braided connectors should meet the guidelines detailed in Chapter 48 of the 2015 ASHRAE Handbook - HVAC Applications.

Vibration Isolation of Ducts, Piping and Conduit

All ducts, piping and conduit connected to rotating or vibrating equipment including large transformers should be vibration isolated from the structure. All ductwork within 50' of connection to any vibrating or rotating equipment should be vibration isolated from the structure by means of isolation hangers with a minimum ¾" static deflection. Similarly, all 2" diameter and greater piping should be vibration isolated for a minimum distance of 25' from connection to any vibrating equipment. Isolation hangers should be used, and should have a minimum ¾" static deflection (except for the first three hangers from the equipment, which should have a static deflection equal to that of the isolators on the equipment to which the pipe is attached, or 2" maximum). Smaller piping (for the same minimum distance) requires only a resilient means of attachment, that may be provided by using a 3" long section of ½" thick, closed-cell, synthetic foam rubber pipe insulation. Standard strapping may then be used around this section of pipe insulation, thereby eliminating any rigid connections.

Suspended spring isolators perform best if they are located near the structure rather than near the pipe, duct, or mechanical unit they are supporting. Also, it is recommended that these spring supports be mounted within 12" of a structural support, such as a beam. Do not allow ceiling or wall subcontractors to attach their frame work or suspension wires to the ductwork, piping, or supporting trapeze.

Conduit and wiring attachments to vibrating or rotating equipment should be made via flexible conduit that provides a 360° loop or should be made via a manufactured resilient fitting.

Audio-Visual Systems and Equipment Narrative

Sound Reinforcement System

A flexible, high intelligibility, and high-fidelity sound reinforcement system will be incorporated into the Performance Hall. The proposed program provides audio systems that support high fidelity for music and program reinforcement as well as high intelligibility for presentation voice reinforcement. This program narrative describes a system that supports both basic operation that requires minimal operator expertise and an enhanced system to support larger productions.

A center cluster loudspeaker system will be provided. The sound reinforcement system will utilize loudspeakers capable of meeting the following design criteria:

- Loudspeaker nominal pattern control should be maintained above 800 Hz.
- Loudspeaker coverage provided by the system should have a maximum variance in level of 3dB across the seating area in the vocal intelligibility frequency range (500 Hz – 4 kHz).
- Subwoofers should be provided and flown with the center cluster loudspeakers.
- Subwoofers should be capable of continuous output from 40 Hz – 100 Hz with output at least 6dB higher than the main loudspeakers.
- The loudspeaker system should be capable of providing a continuous level of at least 90 dB-C and be capable of reproducing peaks up to 10dB greater than the continuous level.

The audio system architecture will be fully digital and networked. This network will allow the audio system in the theatre to interface with additional spaces such as the Lobby, Gallery, dressing rooms, and support spaces.

To support presentations, a maximum of four networked digital wireless microphone receivers will be provided. This includes both handheld transmitters with high quality condenser microphone capsules and body pack transmitters with lapel microphones. Audio I/O plates will be provided on input plates located around the stage and wings. An appropriate number of wired vocal microphones, instrument microphones, drum microphones, DI boxes, microphone stands, and portable cables will be supplied with the system. A stereo recording microphone will be permanently rigged in the house for two channel recording capabilities.

A simple presentation system will make one handheld wireless microphone, one body pack microphone, and one lectern mounted microphone available through the touchscreen. One touchscreen will be provided at the stage manager's position and one at the front of house mix position. These microphones will be auto mixed and equalized for optimal gain before feedback. This system may be used for presenters, lectures, and other events so that the presence of a trained sound system operating technician would be unnecessary at smaller events.

A digital mixing console with a digital snake will be provided. The new mixer will have motorized faders, scene recall, LED scribble strips, dedicated rotary controls for channel processing options, touchscreen, and several channels of local audio I/O for playback devices. A CD player and solid-state recorder will be provided. The FOH position will be located just left of house center; it could, however, be located at house left with infrastructure provided to allow the capability to move the FOH position to the house center when required.

A backstage paging and program audio system will be provided, allowing the sound operator to send a program audio signal to dressing rooms and support spaces so waiting in those areas can listen to performances on stage. This system may also serve as a paging system, allowing a stage manager to page performers from the stage manager's position. Monitor loudspeakers on stage left and stage right will be included so that the stage manager and stage crew can listen to program material for cues. A stage foldback monitor system will also be provided with multiple monitor mix outputs available on stage. Dedicated floor monitor type loudspeakers will be provided.

A two-channel party line intercom system will be included, consisting of a power supply in the amplifier rack, belt pack I/O on stage left, stage right, stage manger's console, catwalks, spotlight positions, audio mix position, lighting control position, dimmer room, speaker stations in the dressing rooms, green room, shop, and theatre related staff offices.

AUDIO-VISUAL SYSTEMS AND EQUIPMENT NARRATIVE

Video Systems

The video system will be capable of displaying HD multimedia and presentations in the theatre as well as distribute video to backstage areas, Lobby and Gallery through a network digital transmission system. The theatre will have an appropriately sized motorized projection screen and a high definition projector. A video monitoring system will be provided on stage, dressing rooms, and shop. A preview monitor will be provided at the stage manger's console.

Video sources will include VGA + HDMI input plates in the following locations:

- Floor box at a lectern location
- The stage manager's position
- Front of house mix position

The video system will also incorporate the following video sources:

- Blu-Ray player at the front of house mix position
- Blu-Ray player at the stage managers position
- Low light capable, high-resolution camera(s) aimed at the stage from the rear of the theatre.

Control Systems

A centralized, networked control system will be provided. Touchscreen controllers will be included at the stage manger's position, FOH position, and possibly at the amplifier rack. Upon system startup the touchscreens will have two modes: presentation and performance. Presentation mode shows only audio and video controls for the presentation system. Performance mode allows the operator to select the video sources, mix via the digital mixing console, and control the advanced functions of the AV system such as backstage paging.

Theatrical Systems and Equipment Narrative

The primary function of the new space will be a recital hall to accommodate Laramie County Community College's music program, and to provide space for student assembly and presentations.

New Space Attributes:

- Basic, dead-hung rigging with motorized electrics and orchestra shells.
- Proscenium style stage.
- Stage area sized to accommodate 40-60 instrumentalists. Backstage support areas for musician circulation and instrument storage.
- Venue is not expected to host touring events.
- Technical booths for lighting, audio, and spotlights. Optional in-house audio mix position.
- A minimum of two front-of-house lighting catwalks.
- Semi-sprung wood floor system on the stage.
- Loading area designed for pickup trucks and panel vans with liftgates. A dock will not be provided to accommodate tractor-trailers.

Stage Rigging and Theatrical Systems:

Stage rigging and theatrical systems will include the following:

- The stage rigging will be a combination of motorized and dead-hung line sets.
- The rigging system will include all pipes, pulleys, tracks, hanging hardware and fittings required for a complete installation.
- A full complement of stage draperies will be provided including travelers, borders, leg sets, a scrim, and a cyclorama.
- Four stage electrics will be provided on motorized hoists. A central control station will be located at the Stage Manager's position and will allow for simple up/down control for loading and unloading the selected pipe battens. The motorized rigging system will employ "deadman" operation, ensuring the operator will be at the console, and able to monitor movement.
- An orchestra shell will be provided. The shell will consist of ceiling panel sections and floor standing towers. The ceiling panel sections will be suspended from motorized rigging line sets, and will be store in the stage house when not in use. Floor standing towers will be stored in stage wings in a nested configuration when not in use.

AUDIO-VISUAL SYSTEMS AND EQUIPMENT NARRATIVE

The following theatre equipment is not provided in the cost estimate below, but should be included in the FF&E budget:

- Musician's chairs, music stands, music stand lights, conductor's stand and a conductor podium.
- Lectern
- 4'x8' platforms with 8", 16", and 24" legs, skirting, step units, chair rails, and handrails.
- Choral risers
- Man lift. The lift should be rated for movement with the work platform in the raised position.

The following equipment is not provided in the cost estimate below, but will be included in the scope of the theatre contractor:

- A pipe grid will be provided in the gallery.

Performance Lighting and Control System:

A theatrical lighting and control system consisting of the following will be provided:

- Two (2) 96-circuit dimmer/relay racks with 2,400W stage and house dimmers/relays and network digital control.
- A dedicated performance lighting and architectural control network. Control and network equipment will be located in an equipment rack near the dimmers.
- A professional lighting control console with fader wings. A wireless access point will be included to allow for portable device (iPad, Android) application control of the system.

Lighting distribution equipment including connector strips and plug boxes will be provided. Distribution equipment will include grounded connectors on 18" pigtails and be mounted on the stage electric positions, box boom positions, and front-of-house lighting catwalk(s). Additional distribution will be located in the stage area and stage orchestra ceiling shells. Lighting network connections will be distributed throughout the house and stage areas.

Network theatrical control console receptacle plates will be located at the lighting control booth, on stage, and at an optional in-house mix position. House light master control stations and entry control stations will be provided. House entry stations will be disabled during performances.

Power will be distributed to spot light positions.A lighting company switch and an audio company switch will be located backstage.

Theatre Lighting Fixtures:

A complement of fixtures will be provided, including spots, ellipsoidal, and fresnel. Both traditional incandescent fixtures and LED fixtures will be provided. The incandescent instruments will have 3-pin grounded stage connectors and the LED fixtures will have Edison connectors. Each of the fixtures will be supplied with a pipe clamp, lamp, safety cable, and color frame, if applicable.

MECHANICAL, ELECTRICAL, PLUMBING NARRATIVE

Project Overview
The project will include the renovation of the existing Fine Arts building (38,700 sq.ft.) and addition of a new Performance Hall building (12,200 sq.ft.). Both buildings will be located on the Laramie County Community College campus in Cheyenne, Wyoming.

Codes and Standards:

2015 International Building Code
2015 International Existing Building Code
2015 International Fire Code
2015 International Mechanical Code
2015 International Plumbing Code
2015 International Energy Conservation Code
2015 International Fuel Gas Code
NFPA 13 2016 Edition – Installation of Sprinkler Systems
NFPA 70 2014 Edition – National Electrical Code

Design Conditions:

Exterior Design Conditions:

Winter	Summer	Project Elevation
-4 oF DB	90 oF DB/63 oF WB	6142

Interior Design Conditions:

Mode	Winter	Summer
Occupied	72oF DB	75oF DB
Unoccupied	65oF DB	85oF DB

Active humidity control is not provided.

Fire Protection

Executive Summary/Overview
The buildings are required to be provided with an automatic fire suppression system. The fire sprinkler system will be designed and installed per NFPA 13, applicable building and fire codes, local building and fire department requirements and requirements of client's insurance carrier.

The sprinkler system will be primarily a wet pipe sprinkler system.

The system that serves the existing building will be modified with new sprinkler heads provided to match the layout of the renovated spaces. A new automatic sprinkler system will be included for the addition.

Code Areas (Hazards):
The following hazard classifications and associated hydraulic design criteria are based on NFPA 13 and are for guidance only. The design criteria will be verified with local fire department and client's insurance carrier.

<u>Wet Systems:</u>
Light Hazard:
Design Density: 0.10 gpm/sq. ft.
Area of Operation: 1500 sq. ft. or the total area, whichever is less.
Hose Stream Demand: 100 gpm.

Ordinary Hazard Group 1:
Design Density: 0.15 gpm/sq. ft.
Area of Operation: 1500 sq. ft. or the total area, whichever is less.
Hose Stream Demand: 250 gpm.

Ordinary Hazard Group 2:
Design Density: 0.20 gpm/sq. ft.
Area of Operation: 1500 sq. ft. or the total area, whichever is less.
Hose Stream Demand: 250 gpm.

Specifications:
The piping used for the wet pipe sprinkler system will be black steel; schedule 40 for 2" and smaller, thin wall for 2-1/2" and larger. Threaded or welded joints for 2" and less, welded or grooved for 2-1/2" and larger.

Connections between branches and heads will be by flexible stainless steel connectors. Install sprinkler heads in the center of ceiling tiles. Install the following types of heads in the areas note:

Head Type	Area	Finish
Concealed	Educational areas, offices	white
Recessed	Storage rooms	chrome
Upright Pendant	Unfinished spaces, mechanical rooms, and electrical rooms	brass
Sidewall	Beneath overhangs and canopies	chrome

Where the system pressure exceeds 175 PSI pressure reducing valves will be provided at zone branch takeoffs. The pressure reducing valves will be UL listed for fire protection service, and rated for 300 psi pressure with field adjustable pilot control from 30 psi to 165 psi.

In mechanical rooms or areas without ceilings, provide sprinklers under ductwork and other obstructions greater than 48" wide as required by NFPA 13.

Plumbing
Executive Summary/Overview
The existing building's plumbing is served by a 2-1/2" domestic cold water service line. The domestic cold water entry assembly is located in the mechanical room. Water heaters are located throughout the building to provide hot water. The cold and hot water piping will be modified as fixture locations dictate for the renovation and addition. Water heaters will be replaced or added as necessary and new hot water circulating piping routed throughout both buildings for code compliance. All new plumbing fixtures will be provided.
Domestic Cold Water Distribution System
Downstream of the water entry assembly, type L copper piping and fittings will be provided. Shut-off valves will be quarter turn ball type. Distribution piping will be routed to bathroom groups and individual fixtures. All cold water lines will be insulated.

Hot Water Distribution System
Downstream of the water heaters, type L copper piping and fittings will be provided. Shut-off valves will be quarter turn ball type. Distribution piping will be routed to bathroom groups and individual fixtures. All hot water and circulation lines will be insulated.

Sanitary Waste/Vent
Waste and vent connections will be extended to bathroom groups and individual fixtures located throughout the building from the mains that exit the existing building. Waste and vent piping below grade to be schedule 40 PVC with solvent welded joints; piping above grade to be standard weight no-hub cast iron pipe with stainless steel no-hub bands. Where existing waste and vent is disconnected, the plumbing system will be terminated in accordance to local code requirements

Storm/Overflow
The storm and overflow piping in the existing building will remain with the exception of the northeast corner where the addition will be located. The piping in this area will be re-routed to avoid the addition. The addition will be drained from roof drains that will be collected and routed to downspout nozzles located at the building's exterior. Piping will be concealed in walls or chases where possible. Piping will be taken to 5'-0" beyond the face of the building where it will be extended by the civil design; a two-way cleanout outside the building prior to the connection to the civil design will be provided. Storm and overflow piping below grade to be schedule 40 PVC with solvent welded joints; piping above grade to be standard weight no-hub cast iron pipe with stainless steel no-hub bands.

Fixtures
Standard Fixtures:
Plumbing fixtures will be as shown on the drawings and will include: water closets, urinals, lavatories, showers, break room stainless steel kitchen sinks, drinking fountains or electric water coolers, kitchen hand wash sinks and mop service basins. Wall boxes will be installed for refrigerator water/ice machine connections.

Owner Furnished
Any owner furnished equipment that will need to be installed by this contractor. Examples include but are not limited to: Washers, dishwasher, sinks, lab equipment, etc.

Mechanical
Executive Summary/Overview:
Campus heating and cooling water is provided to the building via a utility tunnel on the south side of the existing building. The existing building's HVAC is served by a built up variable air volume air handler located in the mechanical room with VAV terminal boxes located throughout the building The western half of the building has hydronic heaters at various locations for heat; the eastern half has hydronic re-heat coils at the VAV boxes. The air handler and ductwork mains will remain, while the distribution ductwork, VAV's, and hydronic piping and heaters will be replaced and/or modified for the new renovation layout. The new VAV's serving the western portion of the building will have hydronic re-heat coils. The addition will be provided with heating and air conditioning through the use of a single indoor variable air volume air handling system connected to the campus hydronic heating and cooling system. The existing building hydronic and chilled water pumps and accessories located in the mechanical room will be replaced with new variable flow pumps sized for the new loads of the renovation and addition.
TAB Statement of Work:
Test and balance the environmental systems including but not limited to air and water distribution systems and the equipment and apparatus connected thereto. The Mechanical Contractor will procure the services of an independent testing and balancing firm specializing in this work.

Controls Statement of Work:
Direct digital controls (DDC) with electric/electronic actuation will be used to control the air handling units. Interface between the units and the DDC system will be via BACnet protocol. The existing system will modified and upgraded as required to accommodate the renovation work as well as the addition. As a minimum, new communication wiring will be provided between the addition and the existing controls system. All VAV boxes, cabinet unit heaters and unit heaters are to have DDC control. Space temperature will be sensed using DDC sensors located in an accessible location. Control valves will be modulating except where noted otherwise below. The system will be complete in all respects, put in operation and calibrated and adjusted under occupied conditions. All temperature control work will be done by a single source responsibility.

Heating:
Hot water is provided from the campus heating water system noted above. Control valves respond to space temperature from the space temperature sensor to open and close the valves to add more or less heat to the space.
Cooling:
Chilled water is provided from the campus chilled water system noted above. Control valves respond to space temperature from the space temperature sensor to open and close the control valves to remove more or less heat from the space.

Natural Gas
A metered natural gas supply has been provided to the existing building. The gas piping after the meter will be modified as necessary for the total load for the building after renovations, complying with the requirements of International Fuel Gas Code. The natural gas piping system will consist of schedule 40 black steel piping and fittings. Distribution pressure downstream of the meter will be 14" WG. Natural
gas will be routed throughout the building to serve the domestic water heaters and other equipment.

Specification:
All chilled and hot water piping systems will be insulated. All base mounted pumps will be provided with inertia bases. All other mechanical equipment will be provided with spring and/or rubber vibration isolation. All piping within mechanical rooms and all piping at acoustically sensitive areas will be provided with spring vibration isolation hangers. All equipment will be located on 4" housekeeping pads unless noted otherwise.

Sheet metal duct systems gauges and installation requirements will be in accordance with SMACNA HVAC Duct Construction Standards Manual. All round and oval ducts exposed to view will be spiral seam. Concealed round and oval ducts may be fabricated with lock type or welded longitudinal seams. All duct connections to motor driven equipment will be made with flexible connections. Make all radius elbows with radius of one and one half times the diameter or width of duct and an inside throat radius of one times the diameter or width. Radius elbows are the preferred method for 90º duct turns. Provide manual balancing dampers at all takeoffs.

All supply, return, exhaust and transfer ductwork will be galvanized steel. Ductwork from shower areas will be stainless steel or aluminum. No fiberboard is allowed. All supply, return and transfer ductwork will be insulated with 1" fiberglass duct liner unless noted otherwise. Return air will be via a return air plenum. All transfer ducts and return air boots, will have a minimum of two 90-deg elbows for sound attenuation.

Fire dampers, smoke dampers, and combination fire/smoke dampers will be installed in ductwork where ducts penetrate rated assemblies where required by the Building Code. Fire detection devices will be installed in all fan systems when required by the Building Code.

Electrical
Executive Summary/Overview:
The existing building electric service is located in _____ and is distributed to power and lighting panels throughout. The electrical service will remain, while the conduits, conductors, remote panels and devices will be replaced for the new renovation layout. The addition will be provided with a new service and distribution to serve the building. Surge protection will be provided at the power panelboard.
All new circuits and feeders will include a green equipment ground. All new feeders and branch circuit wiring will be copper conductors. All new conduit will be minimum ¾". Motor starters, motor controllers and variable frequency drives for 3-phase equipment will be provided by Div. 22 and 23. For mechanical equipment, disconnect switches will be provided integral to the equipment.

Emergency Power:
Two branches of emergency power distribution will be provided one for life safety (code required emergency) and one for standby (equipment/optional). The life safety branch is required to come on line within 10 seconds and the optional in 60 seconds or less. Usually, this can be completed for both in 15 seconds.

The life safety branch of emergency power will feed the following:

a. Exit lighting.
b. Emergency egress lighting
c. Fire alarm systems

MECHANICAL, ELECTRICAL, PLUMBING NARRATIVE

The equipment/optional branch of emergency power will feed the following:

a. HVAC motors to maintain building heat and air circulation.
b. Other loads as required by codes for the secure functioning and to maintain life safety of the facility and the public.
c. Other equipment such as Owner's telephone/data systems, sewage ejectors, overhead doors or sump pumps could be fed from this branch.

Lighting:
Lighting will be provided to meet the requirements the Illuminating Engineering Society (IES).
Light sources indoors will be energy saving LED.
Lighting fixtures will be recessed 2' X 2' or 2' X 4' volumetric LED in educational areas, offices, conference rooms and similar areas. Utility type areas and storage rooms will be lit with 2' X 4' recessed fixtures with Standard pattern lens, 0.156" thick where lay in ceilings are provided.

In areas without ceilings, mechanical, electrical and storage rooms 4' LED strip fixtures with wire guards will be provided.
Other sources and fixtures will be considered and designed to enhance architectural features of the building, particularly the theater, art and performance spaces. These areas will be developed during the design phase.

All exits from the building will require an architectural grade, wall mounted, LED source fixture circuited to a generator-backed life safety circuit.

Occupancy sensors will be provided in all locations where feasible.

Receptacles:
Receptacles for convenience use will be provided as required and located to accommodate the location of furniture, appliance and other equipment needs. Cover plates will be primarily thermoset plastic throughout the facility. Receptacles on emergency power will be red. Receptacles are generally circuited 6 to a circuit or as dictated by need such as vending machines, large copiers, refrigerators and other equipment.

Fire Alarm:
The fire alarm system will be extended and/or upgraded to meet the renovation layout and serve the addition. All initiating devices will be individually identified on the system as to its device type and location. Pull stations accessible to the public will be break glass types to deter false initiation. Sprinkler flow and tamper switches will be monitored by the system. Alarm devices will consist of horns and strobes to meet the requirements of the Americans with Disabilities Act (ADA).

LANDSCAPE NARRATIVE

The proposed site and plaza has been designed to reflect the character of some of the newer outdoor spaces on the LCCC campus. The plaza incorporates curvilinear forms, colored concrete, a seat wall, and a space for a future sculpture feature. Pedestrian connections are provided to the new Performance Hall Lobby and Gallery, as well as to existing walks. The adjacent Library and main promenade will benefit by improved conveyance and sense of place. Two existing conifer trees will remain and be protected with additional landscape improvements including a proposed shade tree, shrubs, perennials, and rock and wood mulch. The plaza will also include pedestrian lighting as needed for nighttime performances. Benches could be provided as an alternate to seat walls.

Exhibit NO. 1: Seat wall

Exhibit NO. 2: Colored Concrete

Exhibit NO. 3: Mulch

CIVIL NARRATIVE

LCCC Performing Arts Level II Planning Study Civil Narrative Summary

This project involves the Level II Planning Study for the new performance hall, new lobby and gallery and renovation to the existing Fine Arts building for Laramie County Community College (LCCC). The gross area of the proposed new additions are 8,164 square feet for the new performance hall and 4,015 square feet for the new lobby and gallery. This building is located in Cheyenne, Wyoming at LCCC along College Drive in Laramie County.

Civil Narrative

Note: Description of existing infrastructure is based in part upon utility maps provided by LCCC and Semple Brown Architects and Designers.

1. Domestic Water

Domestic water within the LCCC campus is provided by the South Cheyenne Water and Sewer District. Two existing 6" water mains are located within the LCCC Campus near the proposed LCCC Performing Arts site. One is on the north side of the existing Fine Arts building and one is located on the south side of the building.

From the latest proposed building layout location provided by Semple Brown Architects, a portion of the existing 6" north water main may need to be relocated away from the proposed LCCC new Performance Hall building with a minimum bury depth of 5.5 feet.

Information from the South Cheyenne Water and Sewer District has and is currently being collected. The static and residual pressure ranges in this area is undetermined at this time. There is one existing fire hydrant (FH #18) located within 100 feet of the proposed new Performance Hall building site that has a blue painted top. This would indicate good existing flow rates of more than 1500 gpm. Good flow and pressure will be needed for domestic water and fire protection at the site.

The new building may require a new domestic water service line and fireline for building sprinkler system if specified by the Mechanical Engineer, both of which may be tapped off of the proposed relocated water main or the existing watermain located south of the existing Fine Arts building. The existing 2 ½" domestic water service to the existing Fine Arts building is fed from the south. This
existing domestic service can be used unless the Mechanical Engineer needs to upsize the service to meet demand.

Any additional required hot water lines required by the Mechanical Engineer are assumed to be direct buried and not require a utility tunnel to the proposed building. A utility tunnel would impact existing and proposed utilities. There is an existing utility tunnel located south of the existing Fine Arts building.

Existing irrigation lines would need to be removed for the proposed buildings and new irrigation system is to be designed by the Landscape Architect if needed.

As part of the approval process for new building construction, Laramie County requires that the site plan be reviewed and signed by the Laramie County Fire Department, verifying the required fire flow and locations of fire hydrants, building fire line, and fire department connection. Construction plans for water mains, domestic taps, fire lines, water meters and fire hydrants are submitted to the South Cheyenne Water and Sewer District for review and approval in addition to Laramie County. A new fireline for building sprinkler system, relocation of a water main or any new fire hydrants would require a DEQ permit to construct.

2. Sanitary Sewer

The South Cheyenne Water and Sewer District is the agency that accepts sanitary sewerage within the LCCC area and conveys it through a series of public mains to the treatment plants. We have assumed no existing sanitary system improvements or upsizing. However, the 8" existing sanitary sewer line located north of the Fine Arts building may need to be relocated for the proposed new

performance hall. An existing 4" sewer service section on the north side of the existing Fine Arts building as well as an existing 8" ductile iron sewer will need to be removed and new cleanouts installed outside of the proposed new performance hall and new lobby and gallery.

According to the existing Fine Arts building asbuilts, South Cheyenne Water and Sewer District, LCCC utility maps, and GIS maps the site has the following existing sanitary sewer infrastructure located near the proposed building:

Existing Manhole #23 located north of the existing Fine Arts building: Rim: 5995.00
Invert: 5987.80 (Based on Fine Arts Finish Floor Elevation 96'-0" = 6000')

Existing Manhole #24 located northeast of the existing Fine Arts building: Rim: 5995.00
Invert: 5986 (Based on Fine Arts Finish Floor Elevation 96'-0" = 6000')

Manhole Adjustments may need to be made for changes in grade.

We have assumed that the Mechanical Engineer will not need a sand/oil separator. We have also assumed that no sanitary sewer lift station will be needed.

3. Drainage

Laramie County and the Laramie County Engineer is the agency that accepts stormwater runoff within the County, and conveys it through a series of public storm sewer and drainage channels to major outfalls, and ultimately Crow Creek.

According to the utility maps, there is an 18" to 24" storm drain that conveys water south of the existing Fine Arts building to the west and then north around the building.

The existing slope of the site drains generally from south to north in the location of the proposed new performance hall. The existing trash enclosure, existing water feature, trees and landscape area may need to be removed as it located within the footprints or close proximity of the proposed buildings. Several feet of existing grade drop occurs in this area. There are proposed doors located on Semple Brown's plans that are in very close proximity to the existing concrete sidewalk/driveway grades located just outside where the doors are located. ADA access will need to be provided to the proposed new buildings.

Storm runoff via downspouts from the proposed new performance hall building is proposed to be collected on the north, south and east sides of the proposed buildings and routed away from the buildings.

As part of the site approval process, Laramie County requires an approved Site Plan, Grading, Erosion and Sediment Control (GESC) permit and Storm Water Pollution Prevention Plan (SWPPP). Construction plans for the proposed storm sewer and detention/stormwater quality systems will also require review and approval.

4. Dry Utilities

a. Fiber Optics
Design of proposed fiber optics lines are by others.

b. Gas
Existing gas lines are available on site. There is an existing 2 ½" gas line located on the north side of the existing fine arts building that will need to be relocated as it is within the footprint of the new performance hall. Design of proposed gas lines are by others.

c. Electric
Existing electric lines are available on site south of the existing Fine Arts building. Existing lightpoles located north of the existing Fine Arts Building may need to be removed. Design of proposed electric lines and lightpoles are by others.

5. Loading Area

A loading area is shown on Semple Brown's plans on the northwest side of the proposed performance hall. Grade adjustments will need to be made in this area.

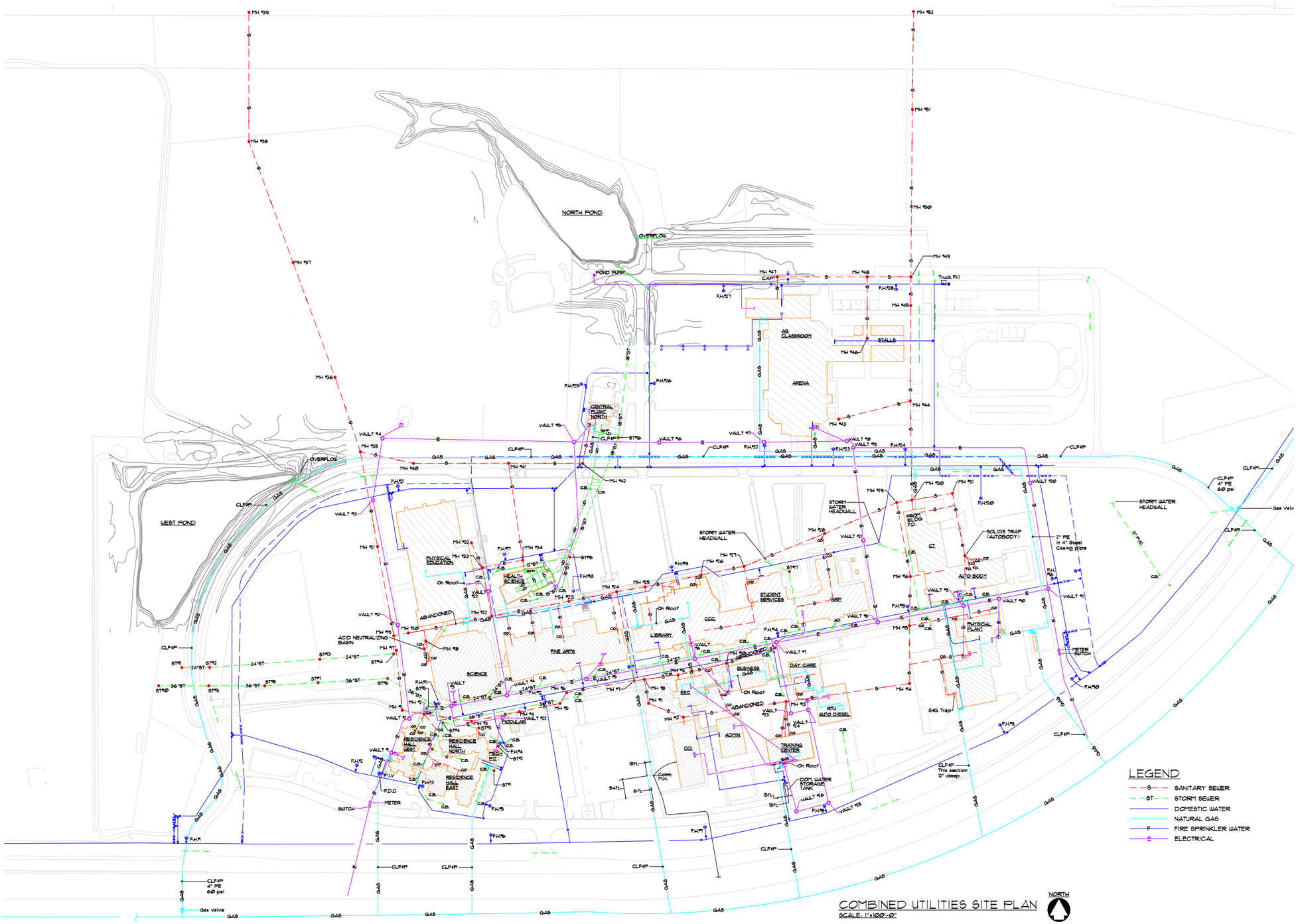
6. Parking

Parking is assumed to be under a future separate contract.

7. Perimeter Drain

A perimeter drain around the most of the proposed building is assumed and would be designed by others. Basements are not included.

UTILITY PLAN



FEBRUARY 19, 2013

STRUCTURAL NARRATIVE

Structural System Narrative

Executive Summary

This narrative for the Level II planning study encompasses both an addition to, and a remodel of, the existing Fine Arts building on the LCCC campus in Cheyenne. The original structure utilizes a pre-cast concrete wall and roof system that is in relatively good structural condition. The use of a pre-cast concrete system allowed for large open spaces with minimal programmatic interference from structural support (column) members. The remodel of this area also benefits from this system as there are no significant structural modifications required to achieve the proposed remodel. All shear walls and gravity members remain in place. At two locations, exterior pre-cast wall panels will be modified to allow for new exit doors.

The single-story addition consists of a performance hall, lobby and gallery and will be positioned directly adjacent to the existing structure. An aggregate pier system is anticipated to enhance the bearing capacity existing sub-grade soils. This enhancement will allow for the use of conventional concrete spread footings and stem wall foundations and will control differential settlements between the new and existing buildings. Above grade structural systems will be masonry bearing walls with wide flange steel roof members at the performance hall. The gallery and lobby will be steel columns and beams supporting wide flange steel roof members. The lateral system will be independent from the existing structure and will utilize both masonry shear walls and structural steel braced frames.

Building Code

The governing building code and corresponding standards for determining minimum loading will be as follows:

1) 2015 International Building Code with City of Cheyenne amendments
2) ASCE 7-10

Loading & Design Criteria

A.	Roof Snow Loads:			
	1)	Ground Snow Load (Pg)	=	30 psf
	2)	Flat Roof Snow Load (Pf)	=	30 psf for uniform, 23.1 psf for drifting calculations
	3)	Snow Exposure Factor (Ce)	=	1.00
	4)	Importance Factor (I)	=	1.10
	5)	Thermal Factor (Ct)	=	1.00
B.	Wind Design Data:			
	1)	Basic Wind Speed	=	Vult = 120 mph, Vasd = 93 mph
	2)	Mean Roof Height	=	± 30ft
	3)	Risk Category	=	III
	4)	Exposure Category	=	C
	5)	Enclosure Classification	=	enclosed building
	6)	Internal Pressure Coeff.	=	+/- 0.18
	7)	Directionality (Kd)	=	0.85
	8)	Topographical Factor (Kzt)	=	TBD
C.	Earthquake Design Data:			
	1)	Risk Category	=	III
	2)	Importance Factor (I)	=	1.25
	3)	Mapped Spectral Response Accelerations:		
	4)	Ss	=	0.155
	5)	S1	=	0.054
	6)	Site Class	=	C, pending geotechnical report
	7)	Spectral Response Coefficients:		
	8)	Sds	=	0.165

9)	Sd1	=	0.089
10)	Seismic Design Category	=	B
11)	Basic Structural System	=	Building Frame Systems
12)	Seismic Resisting System	=	Steel braced frames not specifically detailed for seismic resistance / Ordinary reinforced masonry shear walls.
13)	Design Base Shear V	=	Cs*W
14)	Seismic Response Coef. (Cs)	=	0.059
15)	Response Mod. Factor (R)	=	R=3
16)	Analysis Procedure	=	Equivalent Lateral Force Analysis

D. Frost Depth: 36 inches, pending geotechnical report

E. Design Loads:
1) Dead Load = weight of structure + 10psf lighting, ceiling, mechanical & plumbing
2) Live Load at Elevated Floors = 100 psf minimum, non-reducible
3) Mechanical Loads = weight of equipment and housekeeping pads or 150 PSF if unknown

Structural Framing Systems

The proposed structural systems described below are a representation of Martin/Martin Wyoming's initial analysis and design. Because the configurations and associated framing systems between the existing and new addition differ substantially, a structural separation joint is anticipated.

A. Performance Hall

1. Foundation:

A final geotechnical report was not available during the Level II planning phase. However, based on preliminary conversations with the geotechnical engineer we anticipate the following:

a. The bearing capacity of the existing site soils will be enhanced through the use a aggregate pier system. This system is typically proprietary to the installer and as such will be a performance based design delegated to the contractor. Design parameters and field verification will be provided by the project geotechnical engineer. It is also anticipated this system will be provided under both the load bearing foundation elements and the concrete slab-on-grade.

b. The foundation will be constructed of conventional continuous strip footings (supporting walls) and individual shallow spread footings (supporting columns or other isolated loads).

1) Allowable bearing pressure of 6000 psf is assumed, which is based on similar on campus projects with aggregate piers.

2) Strip footings will be a minimum of 24 inches wide by 12 inches thick under exterior bearing walls.

3) Spread footings beneath interior and exterior columns are anticipated to be four-foot square by 18 inches thick. Size and reinforcing will vary by location in an effort to balance footing pressures and minimize differential settlement.

4) Bottom of exterior strip and spread footings shall be typically located 42 inches below finished slab-on-grade to meet the requirements for frost protection with some variation in exterior grading. Top of pilasters or interior footings may be placed a minimum of four inches below the bottom of slabs-on-grade.

5) f'c = 4,500 psi for footings and pilasters.

6) Slabs-on-grade will be utilized at the floor and are anticipated to be five inches thick and reinforced to facilitate loading and potential anchoring of equipment. The slab will be stepped to accommodate the seating areas.

7) f'c = 4,000 psi for slabs-on-grade. Macro-fiber reinforcement will be used in the mix to supplement mild reinforcement for crack control.

2. Above Grade Framing Systems:

a. Gravity Systems

1) Load bearing masonry exterior walls are anticipated at the perimeter of the performance hall. The walls will be 12" thick concrete masonry units grouted solid with a #6 reinforcing bar at 16" on center. Flush masonry pilasters will be provided at each roof beam bearing locations. f'm = 2000psi.

2) Exterior masonry walls will support structural steel wide flange beams supporting 2" composite roof deck. For cost estimating purposes, the roof beams can be assumed to be W36x135 members spaced at 10'-0" on center. The roof beams will also serve as support for mechanical, lighting, cat walk and other "hung" loading conditions. The beams will support 2" composite 19 gauge metal roof deck below a 4" (6" total thickness) normal weight concrete slab. f'c = 4000 psi for concrete on metal deck.

3) Non-structural interior framing will be constructed with cold form steel. Reference acoustical narrative for framing arrangements.

4) Elevated seating above grade (elevation 100'-0") will be accomplished with cold form steel bearing on a thickened slab-on-grade. Framing for the seating area can be anticipated to be 16 gauge material minimum will support 4" of reinforced concrete slab over metal deck. Alternatively, a rigid insulation support system could be utilized and will be explored further in the future.

b. Lateral Systems

1) The metal roof deck will act as a diaphragm to deliver lateral forces to the exterior masonry shear walls.

B. Gallery/Lobby

1. Foundation:

a. In general, the foundation and slab-on-grade system will be similar to the performance hall area. Aggregate piers are anticipated beneath both concrete foundation elements and the slab-on-grade.

2. Above Grade Framing Systems:

a. Gravity Systems

1) Roof framing will consist of wide flange girders (~W16x31) framing between 5"x5" structural steel tube columns located within wall framing below. Due to the irregular shape of the area, wide flange (~W14x22) infill beams will be utilized in lieu of bar joists. Infill beam at roughly 6'-0" on center will support 1-1/2" steel roof deck (~20 gauge).

2) Exterior wall framing at the gallery is anticipated to be 6" cold form steel framing (~16 gauge with metal panel exterior finish) at 16" on center configured in a by-pass condition. Structural steel columns and bracing will be sized to fit within the wall.

b. Lateral System

1) The metal roof deck assembly will act as flexible horizontal diaphragms that delivers lateral loads to single diagonal braced frames located within the steel stud walls. We anticipate 3 braced frames will be required in addition to the lateral restraint provide by performance hall wall. At this time, we have not included an isolation joist between the masonry wall and the steel framed portions of the project.

C. Remodel Area

a. In general, all structural components at the existing structure are to remain without modification. The primary exception is the addition of two exterior doors at the exterior pre-cast wall double-tee walls. At these locations (both double door configurations) the full 8' width of the pre-cast double-tee will be removed to an approximate height of 8'-0". The portion of pre-cast remaining above will be supported by a steel channel (~C12x20.7) anchored to the inside face of the pre-cast with a combination of screw anchors and bearing plates welded to the channel. Each end of the channel will be supported with a full height steel tube column attached to the roof members and bearing on the existing footing. Removal, and replacement, of the existing slab-on-grade (~4'x4') to allow for column installation is anticipated.

Supplemental Preliminary Geotechnical Engineering Evaluation
Performance Hall
Laramie County Community College
1400 East College Drive
Cheyenne, Wyoming

INTRODUCTION

STRATA, A Professional Services Corporation (STRATA) is pleased to provide our supplemental preliminary geotechnical engineering evaluation for the new performance hall to be located on the campus of Laramie County Community College in Cheyenne, Wyoming. The purpose of this evaluation was to assess the subsurface conditions at the project site and to prepare preliminary geotechnical engineering opinions and recommendations that may be referenced for project development. We accomplished this evaluation referencing our supplemental proposal dated July 24, 2017, and by performing the following services:

1. Three exploratory borings were drilled at the proposed performance hall building site to approximate depths of 15.5 feet.

2. The soils encountered were visually described, classified, and logged referencing the *Unified Soil Classification System* (USCS). Selected samples of the soil encountered were returned to our laboratory for additional visual assessment and testing.

3. Laboratory testing was performed in general accordance with ASTM procedures including in-situ moisture, Atterberg limits, and grain-size analysis. We utilized these laboratory results to help characterize the engineering properties of the soils for use in our engineering evaluation.

4. Engineering analyses were performed in order to provide preliminary geotechnical design and construction recommendations for the proposed development. Specifically, preliminary recommendations were developed for:

   - Earthwork
   - Foundation Type
   - Floor System
   - Surface Drainage

5. An electronic copy of our geotechnical report is provided, including exploratory boring logs and laboratory test results.

PROJECT UNDERSTANDING

Existing Conditions

The proposed location of the new performance hall building was moved to directly north of the existing Fine Arts Building on the campus of Laramie County Community College (LCCC) on East College Drive in Cheyenne, Wyoming. The area of the proposed construction is covered with trees, lawn grass,

landscaping island, and access sidewalks to the Fine Arts Building. The topography of the site slopes down evenly from the existing building approximately six feet to the parking lot.

Proposed Construction

Limited information was available regarding the proposed design and construction of the performance hall building. It is assumed the building will be on the order of 12,500 square feet. We assume the building will be a slab on-grade, steel frame structure with either steel or masonry siding and a steel roof. Based on STRATA's vertical survey it is assumed that grade fills of up to 6 feet may be required to establish the building design subgrade elevation.

FIELD EXPLORATION

Subsurface Exploration

STRATA drilled three exploratory borings on August 8, 2017 to depths of 15.5 feet below existing site grades. The borings were numbered 6, 7, and 8 to be consistent with the original preliminary geotechnical engineering report dated June 23, 2017. The locations of the exploratory borings are indicated on Plate No. 1, Location of Exploratory Borings and the logs of the exploratory borings are presented in Appendix A.

STRATA advanced the soil borings using a CME-75 truck mounted drill rig equipped with 4-inch-diameter solid-stem augers. An experienced geotechnical engineer logged and visually classified the soils encountered in the borings referencing the Unified Soil Classification System. Soil samples were obtained within the borings via 2-inch outside diameter (standard) split-barrel samplers and 2.5 inch outside diameter California samplers driven with a 140-pound automatic hammer falling 30 inches. The standard penetration test SPT N-values (in blows per foot) were recorded on the boring logs for each soil sample. Sampling was performed in general conformance with ASTM D1586 and samples were collected at selected depth intervals as indicated on the logs.

LABORATORY TESTING

The soil samples collected in the field were returned to our laboratory for further classification and testing in accordance with ASTM procedures. We developed our limited laboratory testing program for this project primarily to verify soil classification through index testing. The laboratory test results are included on the boring logs and in Appendix B. Specifically, we completed the following laboratory testing:

- Natural Moisture Content
- Sieve Analysis
- Atterberg Limits

SUBSURFACE CONDITIONS

The subsurface conditions encountered within Borings 6 through 8 generally consist of silty sand to clayey sand. Poorly graded sands and lean clay to fat clay layers were also encountered. Reference the exploratory boring logs for detailed soil descriptions and classifications, groundwater levels, SPT-

N values, and laboratory test results. A more specific discussion of each soil stratum and groundwater encountered is presented below:

- **Existing Fill** – Existing fill was encountered at the ground surface in Boring 8 and extended to a depth of approximately 3.5 feet below existing site grades. The fill consists of clayey sand and has a relative density of medium dense.
- **Silty Sand (SM) to Clayey Sand (SC)** – Silty to clayey sand was encountered below the topsoil in Borings 6 and 7, and below the existing fill in Boring 8. The silty to clayey sand stratums extend to a depth of approximately 4 to 8 feet in Borings 6 and 7, and to the approximate termination depth of 15.5 feet in Boring 8. The relative density of the silty to clayey sand is loose to medium dense, as indicated by the N values which range from 7 to 20.
- **Poorly Graded Sand with Silt (SP-SM)** – Poorly graded sand with silt was encountered below the upper silty sand, from 8 feet to 12 feet, in Boring 7. The relative density of the sand with silt stratum is medium dense, as indicated by the N value of 12.
- **Lean Clay (CL) and Sandy Fat Clay (CH)**– Lean clay was encountered from a depth of 12 feet to the termination depth of 15.5 feet in Boring 7. Sandy fat clay was encountered from a depth of 4 feet to 12.5 feet in Boring 6. The consistency of the clay soils is stiff to very stiff, as indicated by the N values which range from 10 to 18.
- **Groundwater** – Groundwater was not encountered at the time of drilling. Numerous factors can contribute to the fluctuation of groundwater levels. The evaluation of these factors is beyond the scope of this study.

PRELIMINARY RECOMMENDATIONS

This report's preliminary recommendations reflect our understanding of the existing topography, subsurface conditions as encountered, and the planned development of the site. Subsurface conditions may vary from what was observed during our subsurface evaluation and the extent of this variation is unknown and will not be known until further exploration or construction, and may impact construction cost and/or schedule. This report provides geotechnical data and recommendations that can be utilized for preliminary planning and development.

Earthwork

Based on the preliminary nature of the project, very limited details concerning site grading are available. However, we assume the finished floor elevation of the performance hall will be consistent with the finished floor elevation of the existing Fine Arts Building. As stated above, based on our vertical survey it is assumed that grade fills of up to 6 feet may be required to establish the building design subgrade elevation on the northern portion of the project site. During the final design phase of the project, the consolidation potential of the subgrade soils will need to be determined in greater detail in order to evaluate the settlement potential of the subgrade under the load of the new grade fills.

All fill material placed with in the building area should be placed in uniform lifts and compacted as structural fill to a minimum of 95% of the maximum dry density as defined by ASTM D698. The on-site

soil that is free of organic or objectionable materials, as defined by a field technician who is qualified in soil material identification and compaction procedures, can be re-used as fill for the building pad. All of the dark brown and dark gray soils, whether existing fill or native soils, are unsuitable for re-use as structural fill.

Particular care must be taken not to cause construction related induced distress to the existing structure. Appropriate sized equipment for excavating, placing, and compacting fill must be used when working immediately adjacent to the existing building. Any foundation excavations should not undermine or disturb existing foundations.

Foundations

It is our knowledge that the existing Fine Arts Building is supported on conventional shallow spread footings. Ideally, the new building could be supported on a similar spread footing system to provide the most cost-effective foundation solution. However, the subgrade conditions are not favorable. The existing subgrade has up to 8 feet of dark brown to dark gray, existing fill and/or native sandy fat clay and clayey sand that possess high organic contents, loose relative density or softer consistency, low bearing capacity and high settlement potential. For these reasons, the unsuitable dark soils must be overexcavated and replaced with import structural fill in order to accommodate shallow spread footings.

Considering the depth of overexcavation and replacement of the dark soils, the time required for soil replacement, the need for shoring of the existing building, and the associated cost of this operation, we recommend that a system of rammed aggregate piers (RAP) be used to remediate the subgrade. Other remedial subgrade treatments and foundation systems are also feasible, however, we believe that the use of RAP will provide a more cost-effective solution.

The use of RAP under foundations and the floor slabs is favorable for many reasons. Rammed aggregate piers will not require the overexcavation of unsatisfactory soils, they install in a very expedient manner, are not weather or season susceptible, do not require shoring of the existing building, and will allow the use of cost effective shallow spread footing foundations. In addition, the RAP can provide increased bearing capacity while providing reduced settlement potential for the new building foundations and reduced potential for additional movements of the existing foundations due to new foundation loads and excavation stresses.

Typically, RAP systems are provided by a specialty contractor on a design-build basis; therefore, we do not provide specific design input parameters for the pier design. We are available to consult with a RAP contractor, such that our preliminary information and recommendations may be properly and adequately interpreted. We recommend that the RAP system be contracted for design and construction on a performance basis using the following preliminary criteria. Any preliminary design shall incorporate a minimum of 5,000 pounds per square foot (psf) bearing capacity for shallow spread footings and a minimum of 200 pounds per cubic inch (pci) subgrade reaction for slab-on-grade support. The RAP system design shall provide less than ¾ inch of total settlement and differential

settlement of less than ½ inch in 30 feet. The RAP system design settlement parameter should include any movement contributions from the soil zone beneath the remediation depth.

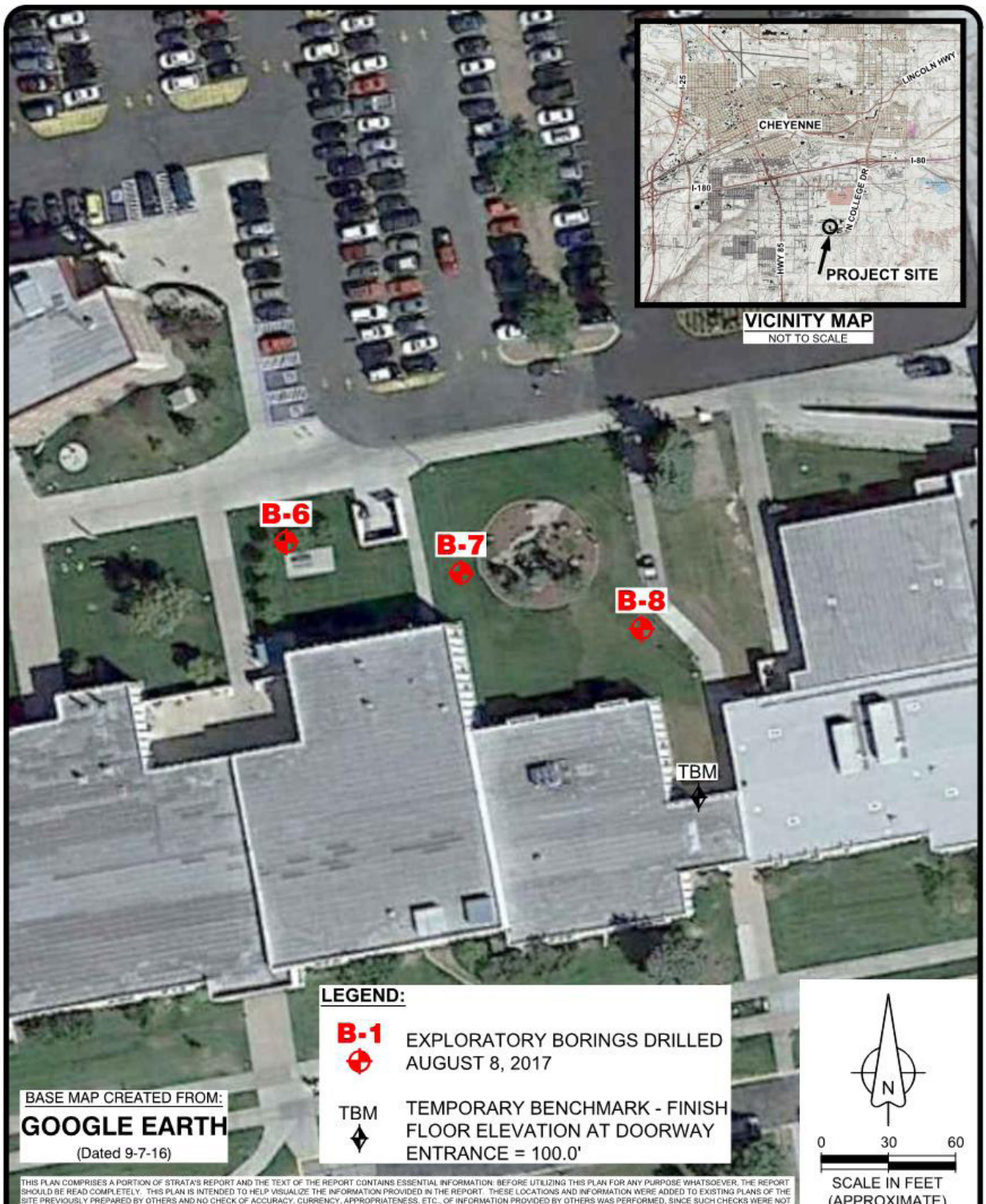
Site Drainage

Positive drainage should be provided throughout the area of the new building during construction and maintained throughout the life of the structure. In areas where sidewalks do not adjoin the structure, we recommend that protective slopes be provided with a minimum grade of approximately 5 percent for at least 10 feet beyond the perimeter of the building. Downspouts and roof drains should discharge onto splash blocks or into extensions when the ground surface beneath such features is not protected by exterior slabs.

EVALUATION LIMITATIONS

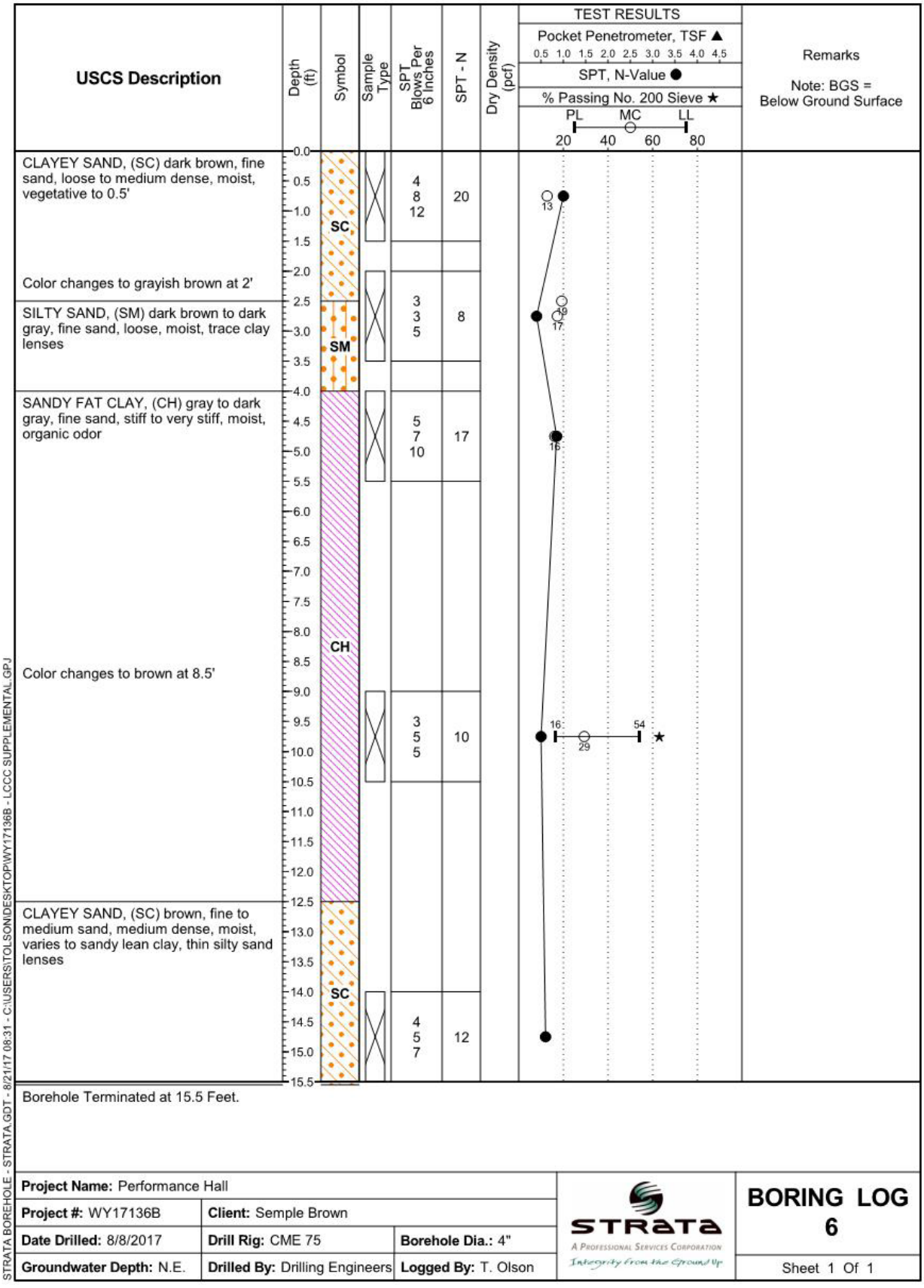
This preliminary geotechnical engineering evaluation has been prepared to assist the feasibility and planning of the potential projects at the Laramie County Community College. Our services consist of professional opinions and recommendations made in accordance with generally accepted geotechnical engineering principles and practices as they exist in Cheyenne at the time of this report.

The geotechnical recommendations provided herein are based on the premise that a final geotechnical engineering study will be conducted for the final design. Further, the method of exploration used allows observation of a relatively small sample of the subsurface conditions at the site. Variations may exist beyond the exploration locations.



APPENDIX A

Exploratory Boring Logs


USCS Description
Depth (ft)
Symbol
Sample Type
SPT Blows Per 6 Inches
SPT - N
Dry Density (pcf)
TEST RESULTS
Pocket Penetrometer, TSF ▲
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5
SPT, N-Value ●
% Passing No. 200 Sieve ★
PL MC LL
20 40 60 80
Remarks
Note: BGS = Below Ground Surface
CLAYEY SAND, (SC) dark brown, fine sand, loose to medium dense, moist, vegetative to 0.5'
4 8 12
20
SC
Color changes to grayish brown at 2'
SILTY SAND, (SM) dark brown to dark gray, fine sand, loose, moist, trace clay lenses
3 3 5
8
SM
SANDY FAT CLAY, (CH) gray to dark gray, fine sand, stiff to very stiff, moist, organic odor
5 7 10
17
CH
Color changes to brown at 8.5'
3 5 5
10
CLAYEY SAND, (SC) brown, fine to medium sand, medium dense, moist, varies to sandy lean clay, thin silty sand lenses
4 5 7
12
SC
Borehole Terminated at 15.5 Feet.
Project Name: Performance Hall
Project #: WY17136B
Client: Semple Brown
Date Drilled: 8/8/2017
Drill Rig: CME 75
Borehole Dia.: 4"
Groundwater Depth: N.E.
Drilled By: Drilling Engineers
Logged By: T. Olson
STRATA
A Professional Services Corporation
Integrity From the Ground Up
BORING LOG 6
Sheet 1 Of 1
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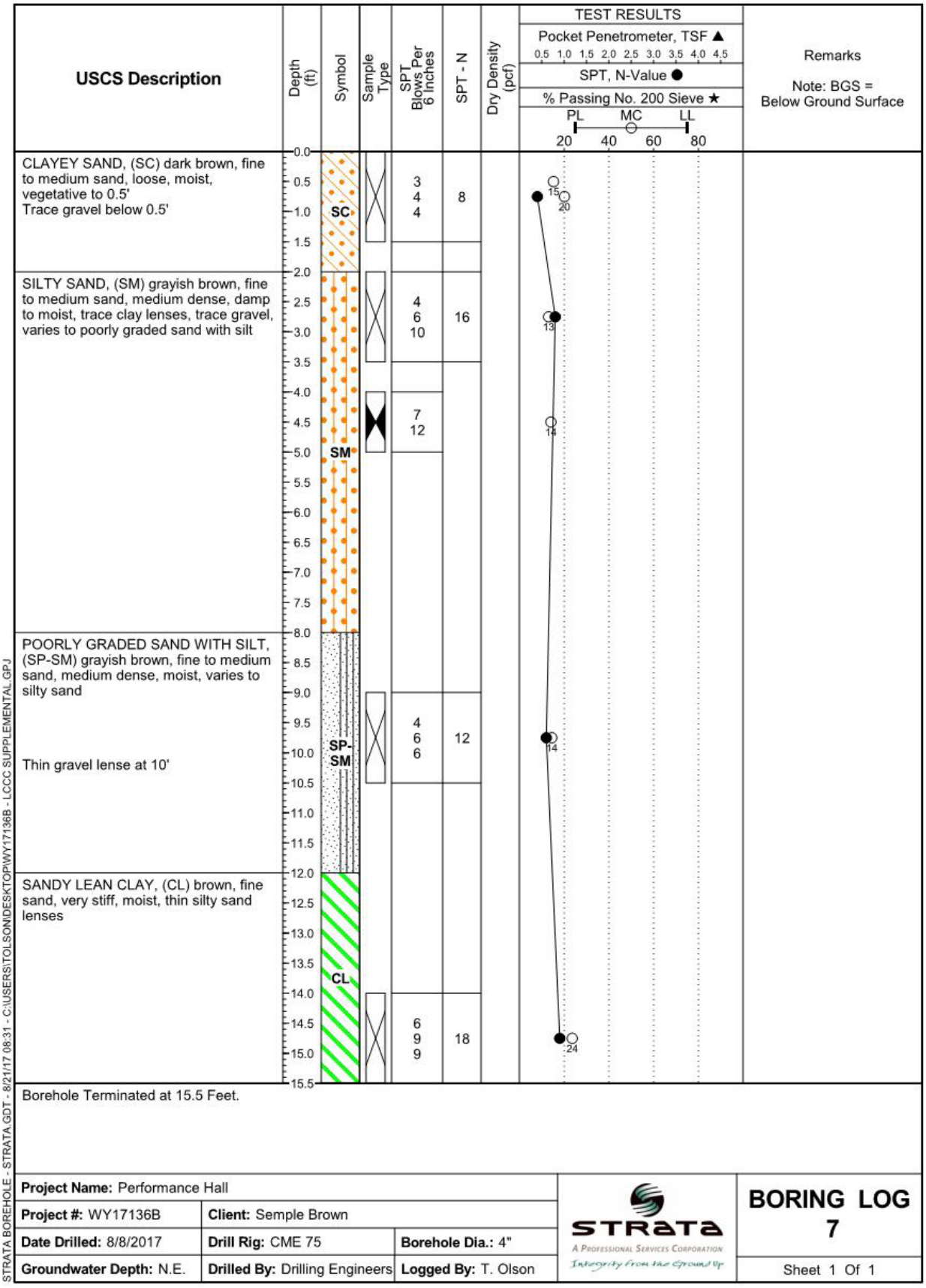
USCS Description
Depth (ft)
Symbol
Sample Type
SPT Blows Per 6 Inches
SPT - N
Dry Density (pcf)
TEST RESULTS
Pocket Penetrometer, TSF ▲
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5
SPT, N-Value ●
% Passing No. 200 Sieve ★
PL MC LL
20 40 60 80
Remarks
Note: BGS = Below Ground Surface
CLAYEY SAND, (SC) dark brown, fine to medium sand, loose, moist, vegetative to 0.5'
Trace gravel below 0.5'
SC
3 4 4
8
SILTY SAND, (SM) grayish brown, fine to medium sand, medium dense, damp to moist, trace clay lenses, trace gravel, varies to poorly graded sand with silt
SM
4 6 10
16
7 12
POORLY GRADED SAND WITH SILT, (SP-SM) grayish brown, fine to medium sand, medium dense, moist, varies to silty sand
Thin gravel lense at 10'
SP-SM
4 6 6
12
SANDY LEAN CLAY, (CL) brown, fine sand, very stiff, moist, thin silty sand lenses
CL
6 9 9
18
Borehole Terminated at 15.5 Feet.
Project Name: Performance Hall
Project #: WY17136B
Client: Semple Brown
Date Drilled: 8/8/2017
Drill Rig: CME 75
Borehole Dia.: 4"
Groundwater Depth: N.E.
Drilled By: Drilling Engineers
Logged By: T. Olson
STRATA
A Professional Services Corporation
Integrity From the Ground Up
BORING LOG 7
Sheet 1 Of 1
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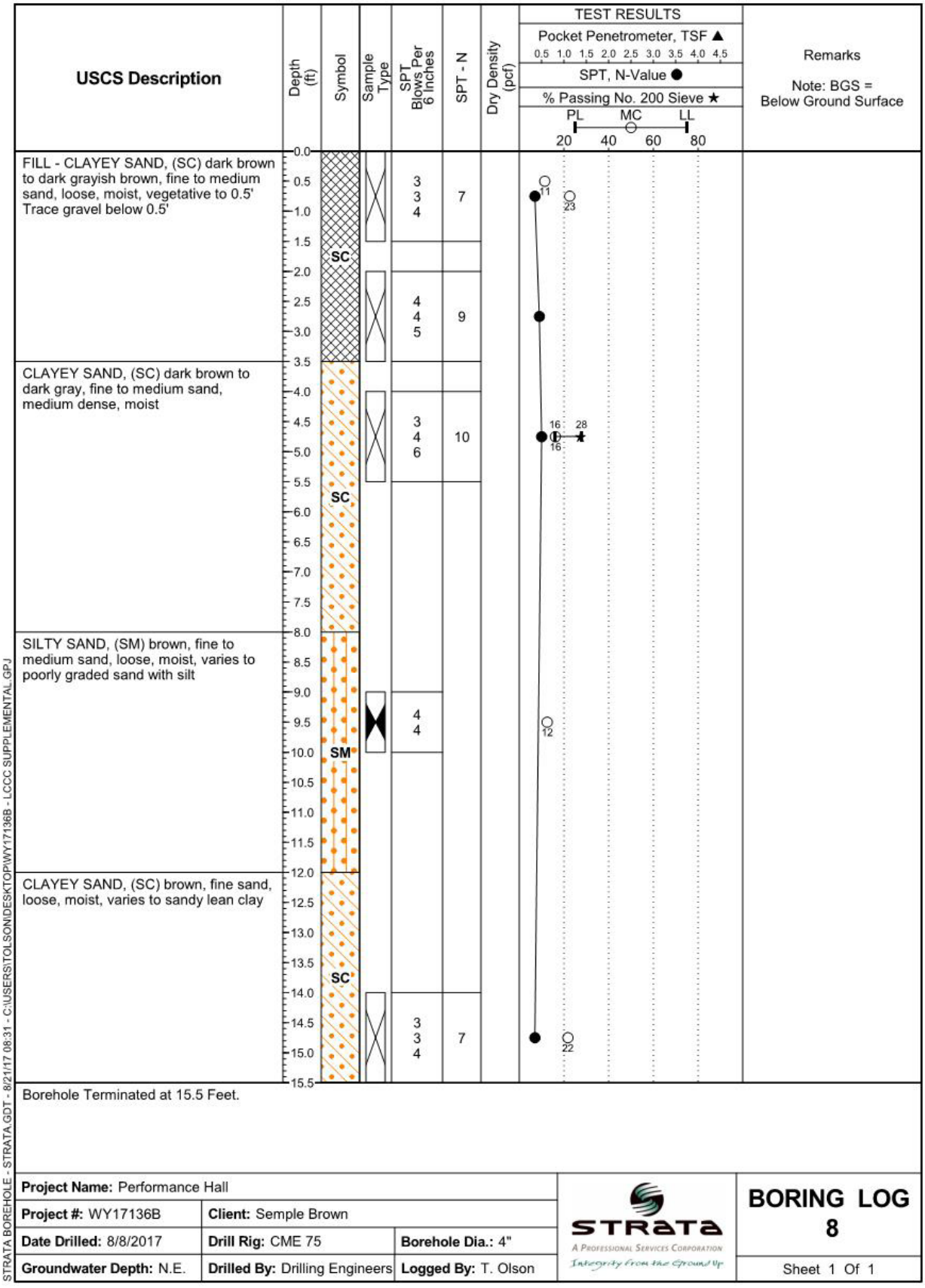

USCS Description
Depth (ft)
Symbol
Sample Type
SPT Blows Per 6 Inches
SPT - N
Dry Density (pcf)
TEST RESULTS
Pocket Penetrometer, TSF ▲
0.5 1.0 1.5 2.0 2.5 3.0 3.5 4.0 4.5
SPT, N-Value ●
% Passing No. 200 Sieve ★
PL MC LL
20 40 60 80
Remarks
Note: BGS = Below Ground Surface
FILL - CLAYEY SAND, (SC) dark brown to dark grayish brown, fine to medium sand, loose, moist, vegetative to 0.5' Trace gravel below 0.5'
SC
3 3 4
7
4 4 5
9
CLAYEY SAND, (SC) dark brown to dark gray, fine to medium sand, medium dense, moist
SC
3 4 6
10
SILTY SAND, (SM) brown, fine to medium sand, loose, moist, varies to poorly graded sand with silt
SM
4 4
CLAYEY SAND, (SC) brown, fine sand, loose, moist, varies to sandy lean clay
SC
3 3 4
7
Borehole Terminated at 15.5 Feet.
Project Name: Performance Hall
Project #: WY17136B
Client: Semple Brown
Date Drilled: 8/8/2017
Drill Rig: CME 75
Borehole Dia.: 4"
Groundwater Depth: N.E.
Drilled By: Drilling Engineers
Logged By: T. Olson
STRATA
A Professional Services Corporation
Integrity From the Ground Up
BORING LOG 8
Sheet 1 Of 1
STRATA BOREHOLE - STRATA.GDT - 8/21/17 08:31 - C:\USERS\TOLSON\DESKTOP\WY17136B - LCCC SUPPLEMENTAL.GPJ

APPENDIX B

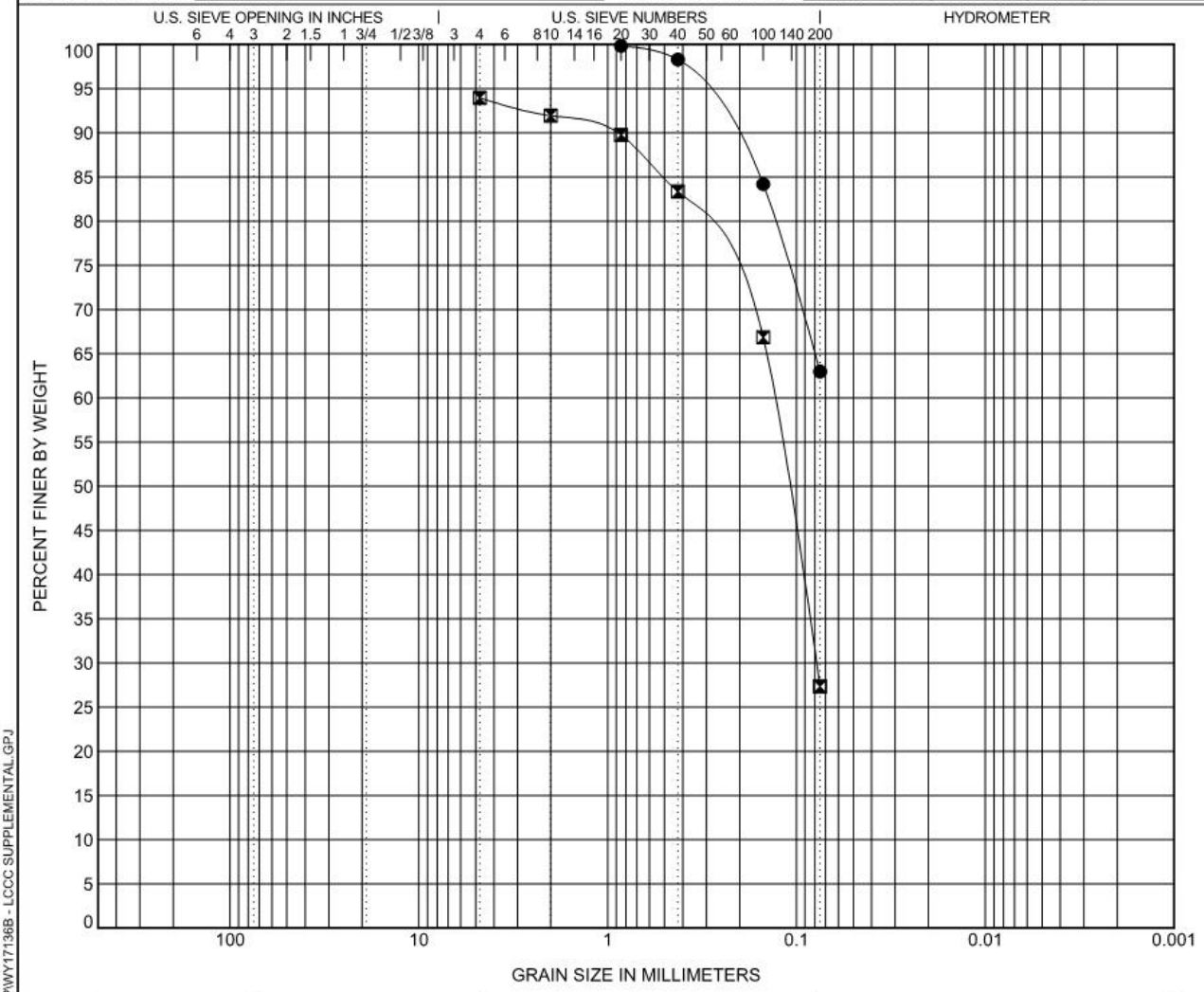
Laboratory Test Results

STRATA
A Professional Services Corporation
Integrity From the Ground Up

GRAIN SIZE DISTRIBUTION

CLIENT Semple Brown **PROJECT NAME** Performance Hall

PROJECT NUMBER WY17136B **PROJECT LOCATION** Laramie County Community College

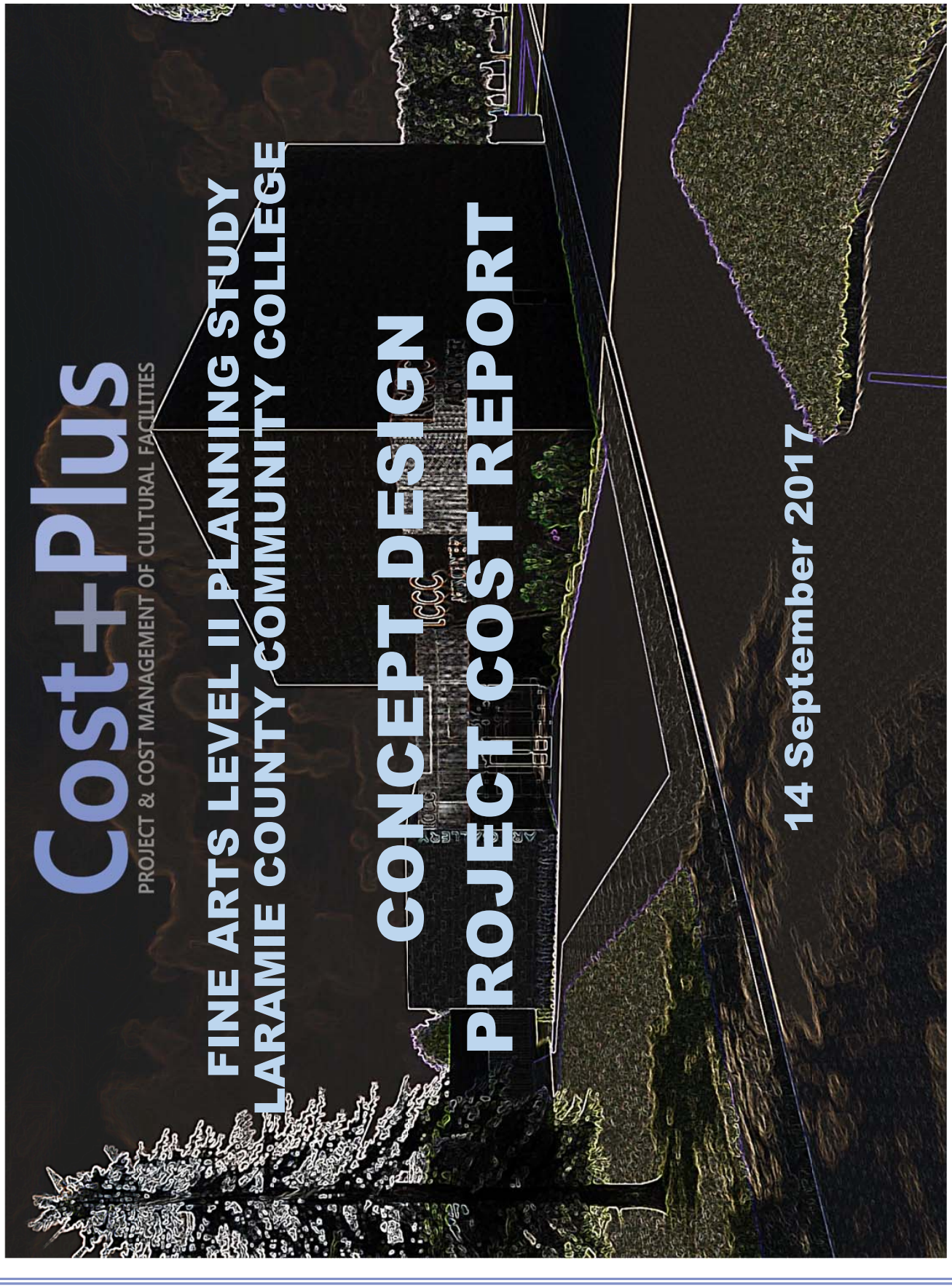


COBBLES	GRAVEL		SAND			SILT OR CLAY
	coarse	fine	coarse	medium	fine	

	BOREHOLE	DEPTH	Classification	LL	PL	PI	Cc	Cu
●	6	9.0	SANDY FAT CLAY(CH)	54	16	38		
⊠	8	4.0	CLAYEY SAND(SC)	28	16	12		

	BOREHOLE	DEPTH	D100	D60	D30	D10	%Gravel	%Sand	%Silt	%Clay
●	6	9.0	0.85					36.9	63.0	
⊠	8	4.0	4.75	0.133	0.079			66.6	27.3	

GRAIN SIZE - STRATA.GDT - 8/21/17 08:29 - C:\USERS\TOLSON\DESKTOP\WY17136B - LCCC SUPPLEMENTAL.GPJ


Cost+Plus
PROJECT & COST MANAGEMENT OF CULTURAL FACILITIES
FINE ARTS LEVEL II PLANNING STUDY
LARAMIE COUNTY COMMUNITY COLLEGE
CONCEPT DESIGN
PROJECT COST REPORT
14 September 2017

1.0 Summary

Cost+Plus, a firm dedicated to providing project and cost management services for cultural facilities, was hired by Semple Brown (SB) to provide cost management services for the Fine Arts Level II Planning Study at Laramie County Community College (LCCC). As part of these Services, a Concept Design Project Cost Report deliverable is required which is hereby provided.

Following receiving and analyzing the Preliminary Programmatic and Concept Design Documentation prepared by the SB design team, and preparation of this Concept Design Project Cost Report, Cost+Plus advises that the new Performing Arts Building Project with all Site Development scope can currently be realistically budgeted at a Project Cost of **$9,765,000** in projected 3rd Quarter 2019 bid dollars. In addition, the Renovations Project to the existing WFA Building can currently be realistically budgeted at a Project Cost of **$4,235,000** in projected 3rd Quarter 2019 bid dollars.

This Report reflects a Concept Design Project Cost Projection that would provide the LCCC with quality facilities which, with the implementation of ongoing professional construction cost management and control services, could be delivered within this budget.

The new Performing Arts Building Project comprises a 376-seat Theatre, Gallery Space, with associated public and support spaces. The total "as-drawn" area of the Concept Design plans for the new facility has been assessed by Semple Brown at **11,310 gross square feet**. The renovations to the existing WFA Building Project comprises substantial reconfiguration of the existing space to provide for a new Music Rehearsal Studio, Practice Rooms, Classrooms, 2D and 3D Studios, Ceramics, with associated support spaces. The total "as-drawn" area of the new renovated WFA Building has been assessed by Cost+Plus at **43,530 net square feet**.

Should this Concept Design Project Cost Projection be in excess of the LCCC stipulated budget, this Report will additionally serve as the basis for Concept Design Project Cost reduction strategies and exercises that Cost+Plus will undertake with input from LCCC and the SB design team to meet the stipulated budget cap.

All preliminary programmatic and concept design costs must be considered in the context of the directed architectural design and performance space quality expectations, and all other recommendations, interpretations and assumptions made by Cost+Plus, all as described in the body of this Report.

2.0 Contributors & Acknowledgements

Cost+Plus would like to acknowledge the following firms for their collaborative cooperation with Cost+Plus in several sessions and communication exchanges leading up to the production of this Concept Design Project Cost Report:

Laramie County Community College	Semple Brown Design, P.C.	D.L. Adams Associates
Strata	Martin/Martin	MKK Consulting Engineers

3.0 Definition of "Construction Cost"

To clarify the definition of "Project Cost" for specific purposes of this Report, the following categories of cost are included: -

- Demolition/Site Preparation Cost
- Building Direct Trade Costs for New Construction and Renovation
- Performance/Audio Video Equipment & Seating allowances (provided by D.L. Adams)
- Building Utilities allowances
- Design Phase Contingency
- Construction Manager's general conditions of contract, general requirements, bonds, insurances, permits, overheads and profit
- Escalation Contingency from 3rd Quarter 2017 to projected bid date 3rd Quarter 2019
- Bidding and CM construction contingencies
- All other Project "Soft" Costs

All costs above are expressed in projected 3rd Quarter 2019, Laramie and surrounding area competitive bid dollars for a unique, quality project of this type

4.0 Exclusions

The following costs are **excluded** from this Concept Design Project Cost Report: -

- Overtime/expediting premiums
- Costs seeking beyond LEED certification
- Endowment (if applicable)
- Escalation beyond 3rd Quarter 2019
- Exhibits for Gallery space
- Site Development/Landscaping Costs
- Any work associated with future phases
- Sales Tax
- New roof covering to existing WFA Building
- Detailed evaluation of Strata's Preliminary Geotech Engineering Report
- Exterior wall upgrades to existing WFA Building
- Replacement of utility lines (if applicable)
- Abatement of any hazardous materials

Cost+Plus has worked closely with SB and DLA to identify, discuss, and ensure coordination of, all the above items. LCCC should include all of the above items, and any other required Project Costs, to compile their overall total cost target for the Capital Campaign Fundraising.

5.0 Quality Standards

Cost+Plus communicated with SB and DLA and, upon their direction, considered levels for both architectural and performance quality for this Project Cost Report as described in the body of this Report. The exterior skin for the new 376-seat Performing Arts Building has been considered as predominantly metal panel with other stucco areas and a small glazed entrance and the roof considered as a flat roof. Interior finishes are modest and functional. This Report attempts to reflect a Project Cost that would provide the LCCC with a facility to such a quality level which, with the implementation of ongoing professional cost management and control services, could be delivered within a realistic budget and timeframe.

6.0 Cost+Plus Strategy

Cost+Plus conducted a thorough review of all Concept Design Documentation submitted by the SB design team (last issue received on August 31st) and prepared conceptual projections for all building elements and priced out the generated quantities using current local Laramie and surrounding area market bid unit costs for all elements. In addition, and as is normal at this program/concept stage, various allowances have been included by Cost+Plus for information gaps which have been assessed based upon our experience of past performing arts projects.

The objectives of this Concept Design Project Cost Report are to establish realistic and reliable preliminary construction and project cost guidelines required for the LCCC's consideration and approval and thereafter guide the determination of the approved program, concept design, and project strategy to be designed to desired standards and within the time frame approved. This Report also provides a logical framework to assist the LCCC and the SB design team during the next phase of design (Schematic Design).

7.0 Market Conditions and Pricing

Cost+Plus can report that construction activity is currently busy with sub-contractors bidding actively for Projects. It is expected that this level of construction activity will continue for the foreseeable future. The pricing used in this Report for all budget components simulates current 3rd Quarter 2017 Laramie costs. The pricing should be carefully monitored and effects of market conditions reported to LCCC periodically at the end of each design phase.

8.0 Design Phase Contingency

A contingency of 5% (suitable for complex cultural projects of this type when considering the Cost+Plus approach to the pricing of all defined scope of work) has been included at this initial phase of the project for all design and cost unknowns. This amount will be controlled, as necessary, during the ongoing design phases of the project.

9.0 Construction Manager General Conditions, General Requirements, Overheads and Profit

A competitive allowance of 13% has been provided for all normal general conditions, general requirements, site overheads and profit, permits, insurances and bonds as required by invited competitive, General Contractor (GC) or Construction Management (CM) procurement methodology. This is intended to cover, for example:

on-site management, supervisory (general superintendent, asst. superintendents, engineers, etc.), building layout, timekeeping and secretarial personnel; temporary field offices, equipment and servicing for all site staff and design team; temporary site protection, fences/gates; storage sheds; temporary toilets and plumbing; temporary telephones and communication equipment; safety measures/education; drinking water and ice; progress photographs; temporary heating and electric service, power panels and distribution; transits and levels; computers; site personnel's workmen's compensation and insurances; miscellaneous tools and equipment; shop drawings and A/E drawings' reproduction and distribution; long distance communications; temporary walkways, doors and partitions; general and final cleanup of building interiors and glass; trash dumpsters and removals off site; general laborers for miscellaneous tasks; as-built drawings for Owner and design team records; warranties, guarantees and building maintenance instruction to building staff; project signs; performance bonds, Builder's risk insurance, general liability insurance, building and miscellaneous permits, preconstruction services, head office overheads and profit.

10.0 Escalation Contingency

Cost+Plus has included a provisional allowance of 6% as a projection for escalation for the next 24 months for bid's receipt in 3rd Quarter 2019. This contingency will require careful monitoring and frequent reporting back to LCCC.

11.0 Performance Equipment Allowances

D.L. Adams and Semple Brown provided Cost+Plus with "order-of-magnitude" allowances for all theatre, acoustical, and audio/visual performance equipment including audience seating. This has been carefully coordinated with D.L. Adams and, in addition, Cost+Plus has included cost allowances for all necessary electrical infrastructure to accommodate the equipment.

12.0 Site Development/Building Utilities Allowance

At this time, Cost+Plus has included an allowance associated with the building utility requirements which would require development during the early part of Schematic Design. Semple Brown directed Cost+Plus to exclude the $130,000 Project Cost allowance for the Site Landscaping as this could be funded separately.

13.0 Bidding Contingency

Cost+Plus has included a line item provision of 2% to cover the bidding contingency per assumed Contract Agreement between LCCC and the selected CM/GC.

14.0 CM Construction Contingency

Cost+Plus has included a line item provision of 3% to cover the CM/GC construction contingency per assumed Contract Agreement between LCCC and the selected CM/GC.

15.0 Project Soft Costs

Semple Brown directed Cost+Plus to include a line item provision of 20% to cover all other required Project Costs.

All the above defines the "Project Cost Projection" in 3rd Quarter 2017 competitive Laramie terms assessed by Cost+Plus for this Report.

16.0 Documentation

Cost+Plus was provided with the following documentation for the preparation of this Concept Design Project Cost Report: -

- SB Concept Design Documentation (received by Cost+Plus on August 31st for the New Building and Renovations)
- D.L. Adams Memo "AV and Theatre Equipment Narratives" dated 7/13/2017 and Cost Opinion Summary dated 8/4/2017
- Strata Preliminary Geotechnical Engineering Evaluation
- Martin/Martin Civil Narrative Summary
- Martin/Martin Structural System Narrative
- MKK Consulting Engineers Mechanical and Electrical Narratives
- Numerous email correspondence with SB up to, and including, 14 September 2017

Fine Arts Level II Planning Study at LCCC

Laramie, WY

SUMMARIES

14 September 2017

Cost+Plus
PROJECT & COST MANAGEMENT OF CULTURAL FACILITIES

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Project Cost Projection — **14 September 2017**

		PERFORMING ARTS CENTER		SITEWORK & UTILITIES		WFA RENOVATION	TOTAL
	Gross Floor Area (gsf)		**11,310**			**43,530**	
1.0.	Demolition/Site Preparation			$25,000		$100,000	$125,000
2.0.	Building Direct Trades Cost	**$466/gsf**	**$5,270,000**		**$58/gsf**	$2,530,000	$7,800,000
3.0.	Specialist Equipment allowances (by D.L. Adams):						
	3.1. Performance/Audio Visual Equipment		$670,000			$45,000	$715,000
	3.2. Seating	**$71/gsf**	$130,000		**$1/gsf**	$0	$130,000
4.0.	Site development/building utilities allowance:						
	4.1. Hard/Soft landscaping			Alternate			$0
	4.2. Building utilities			$100,000			$100,000
5.0.	Design phase contingency	5%	$265,000	$5,000	5%	$130,000	$400,000
6.0.	General conditions/requirements, insurances, bonds, fee etc.	13%	$825,000	$15,000	13%	$365,000	$1,205,000
TOTAL BID COST (3rd QTR 2017 BID DOLLARS)		**$633/gsf**	**$7,160,000**	**$145,000**	**$73/gsf**	**$3,170,000**	**$10,475,000**
7.0.	Escalation contingency (3rd Qtr 2017 to 3rd Qtr 2019 - 2 Years)	6%	$430,000	$10,000	6%	$190,000	$630,000
TOTAL ESCALATED BID COST (3rd QTR 2019 BID DOLLARS)		**$671/gsf**	**$7,590,000**	**$155,000**	**$77/gsf**	**$3,360,000**	**$11,105,000**
8.0.	Bidding contingency (Assumed 2%)	2%	$150,000	$5,000	2%	$65,000	$220,000
9.0.	CM construction contingency (Assumed 3%)	3%	$230,000	$5,000	3%	$105,000	$340,000
TOTAL ESCALATED CONSTRUCTION COST (3rd QTR 2019 BID DOLLARS)		**$705/gsf**	**$7,970,000**	**$165,000**	**$81/gsf**	**$3,530,000**	**$11,665,000**
10.0.	Project Soft Costs	20%	$1,595,000	$35,000	20%	$705,000	$2,335,000
TOTAL PROJECT COST		**$846/gsf**	**$9,565,000**	**$200,000**	**$97/gsf**	**$4,235,000**	**$14,000,000**

Additional Project Costs Excluded from Above (including all mark-ups):

- New roof to existing WFA Building (44,590 sf) - $1,100,000
- Exterior wall upgrades to existing WFA Building (10,000 sf) - $475,000
- Landscaping allowance - $160,000

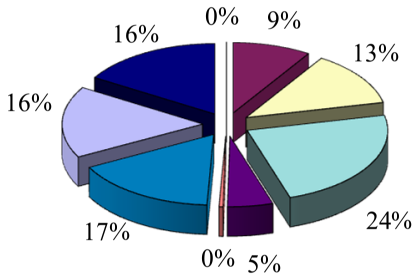
Cost+Plus
PROJECT & COST MANAGEMENT OF CULTURAL FACILITIES

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Direct Trades Cost Summary (New Building) **14 September 2017**

	Elemental Amount		Rate per gsf	
1.0. Demolition (w/Site)		**$0**		**$0.00**
2.0. Substructure		**$475,000**		**$42.00**
2.1 Earthwork	$160,000			
2.2 Foundations	$210,000			
2.3 Basement walls	$0			
2.4 Slab-on-grade	$105,000			
3.0. Structure		**$660,000**		**$58.36**
4.0. Exterior Skin		**$1,240,000**		**$109.64**
4.1 Roof	$215,000		$19.01	
4.2 Exterior walls	$865,000		$76.48	
4.3 Windows	$50,000		$4.42	
4.4 Exterior doors	$40,000		$3.54	
4.5 Building projections	$70,000		$6.19	
5.0. Interior Partitions and Doors		**$275,000**		**$24.31**
5.1 Interior partitions	$245,000		$21.66	
5.2 Interior doors	$30,000		$2.65	
6.0. Vertical Movement		**$25,000**		**$2.21**
6.1 Stairs	$25,000		$2.21	
6.2 Elevators	$0		$0.00	
7.0. Interiors		**$870,000**		**$76.92**
8.0. Mechanical		**$865,000**		**$76.48**
8.1 Plumbing	$95,000		$8.40	
8.2 Fire protection	$85,000		$7.52	
8.3 HVAC and controls	$685,000		$60.57	
9.0. Electrical		**$860,000**		**$76.04**
Total Building Cost		**$5,270,000**		**$465.96**
Building Gross Floor Area		**11,310 gsf**		



Cost+Plus
PROJECT & COST MANAGEMENT OF CULTURAL FACILITIES

Fine Arts Level II Planning Study at LCCC

Laramie, WY

CONCEPT ESTIMATE

14 September 2017

Cost+Plus
PROJECT & COST MANAGEMENT OF CULTURAL FACILITIES

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

		SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
		Quantity	Rate	Amount	Quantity	Rate	Amount
1.0 DEMOLITION				w/Site			
2.0 SUBSTRUCTURE							
2.1 EARTHWORK							
2.1.1	Excavate/stockpile/fill/haul (for building footprint only)	1,100 cy	17.50	19,300			
2.1.2	Soil remediation allowance (per Strata Report)	allowance		141,000			
2.1.3	Temporary dewatering			not required			
				$160,300			
2.2 FOUNDATIONS							
2.2.1	Foundations allowance	11,310 sf	18.50	209,200			
2.2.2	Acoustic isolation requirements	allowance		3,000			
				$212,200			
2.3 BASEMENT / RETAINING WALLS				not required			
2.4 SLAB-ON-GRADE							
2.4.1	Earth formed slab-on-grade	11,310 sf	9.25	104,600			
				$104,600			
3.0 STRUCTURE							
3.1 CONCRETE							
3.1.1	Concrete on metal deck including rebar/mesh reinforcement, rub down etc. forming all roofs (includes metal deck)	11,310 sf	10.61	120,000			
				$120,000			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

		SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
		Quantity	Rate	Amount	Quantity	Rate	Amount
3.0 STRUCTURE (Cont'd)							
3.2 STRUCTURAL STEEL							
3.2.1	Structural steel framing (columns, beams etc.) inc. connections	63 tns	3,975.00	250,000			
3.2.2	Miscellaneous bracing etc.	5 tns	3,900.00	19,500			
3.2.3	Catwalks:						
	- theatre auditorium	130 lf	450.00	58,500			
	- stage	60 lf	425.00	25,500			
3.2.4	Miscellaneous support steel inc. connections:						
	- theatre, grid/rigging steel at stage			not required			
	- theatre, support steel at forestage (15psf)	8.25 tns	4,750.00	39,000			
				$392,500			
3.3 MISCELLANEOUS							
3.3.1	Acoustical requirements:						
	- acoustical isolation joints	allowance		10,000			
	- acoustical isolation for select mechanical equipment	allowance		20,000			
3.3.2	Fireproofing	allowance		35,000			
3.3.3	Firesafing	allowance		5,000			
3.3.4	Miscellaneous metals	allowance		50,000			
3.3.6	Cranes	allowance		w/3.2.1			
3.3.7	Exterior loading dock, 20'0" x 15'0" wide	allowance		28,500			
				$148,500			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

		SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
		Quantity	Rate	Amount	Quantity	Rate	Amount
4.0 EXTERIOR SKIN							
4.1 ROOF							
4.1.1	Glazed skylights			none shown			
4.1.2	Standard flat roof system, TPO (inc. all flashings/accessories etc.)	11,310 sf	13.50	152,700			
4.1.3	Acoustical smoke vents/hatches on stage roof	allowance		40,000			
4.1.4	Rough carpentry	allowance		20,000			
				$212,700			
4.2 EXTERIOR WALLS							
4.2.1	Metal Panel 1	10,100 sf	22.50	227,300			
4.2.2	Metal Panel 2	1,690 sf	20.00	33,800			
4.2.3	Stucco	1,900 sf	15.00	28,500			
4.2.4	Backup:						
	- cmu & panel framing to exposed theater walls incl. damp/ins	10,100 sf	37.50	378,800			
	- 8" structural stud system incl. sheathing, insulation etc.	3,590 sf	17.50	62,800			
4.2.5	Parapets	1,360 sf	65.00	88,400			
4.2.6	Coping	490 lf	50.00	24,500			
4.2.7	Caulking and sealing	allowance		20,000			
4.2.8	Mockups	allowance		incl. above			
4.2.9	Acoustic isolation joint	allowance		not required			
				$864,100			
4.3 CURTAIN WALL / WINDOWS / EXTERIOR GLAZING							
4.3.1	Storefront glazing	660 sf	75.00	49,500			
				$49,500			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

		SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
		Quantity	Rate	Amount	Quantity	Rate	Amount
4.4 EXTERIOR DOORS							
4.4.1	Glazed doors	3 lvs	5,000.00	15,000			
4.4.2	Metal/BOH doors	3 lvs	3,000.00	9,000			
4.4.3	Overhead doors	1 ea	17,500.00	17,500			
				$41,500			
4.5 BUILDING PROJECTIONS							
4.5.1	Exterior building signage	allowance		50,000			
4.5.2	Exterior canopies and soffits	allowance		20,000			
				$70,000			
5.0 INTERIOR PARTITIONS AND DOORS							
5.1 INTERIOR PARTITIONS							
5.1.1	Glass partitions			none shown			
5.1.2	Acoustically required partitions: - 8" grout filled cmu around auditorium	2,125 sf	20.00	42,500			
5.1.3	Cmu/drywall partitions throughout	12,395 sf	15.50	192,100			
5.1.4	Firesafing	allowance		5,000			
				$239,600			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

		SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
		Quantity	Rate	Amount	Quantity	Rate	Amount
5.2	**INTERIOR DOORS (including all frames and hardware)**						
5.2.1	Glazed	2 lvs	2,750.00	5,500			
5.2.2	Wood/metal with acoustic perimeter gaskets/seals	5 lvs	2,500.00	12,500			
5.2.3	Wood/metal (boh/foh)	5 ea	1,900.00	9,500			
5.2.4	Allowance for doors not yet shown	allowance		2,000			
				$29,500			
6.0	**VERTICAL MOVEMENT**						
6.1	**STAIRS**						
6.1.1	Miscellaneous steps within auditorium etc.	allowance		25,000			
				$25,000			
7.0	**INTERIORS**						
7.0.1	Floor, wall, ceiling finishes incl. all specialties/millwork etc.						
	- 376 Seat Performance Hall	4,165 sf	99.00	412,335			
	- 376 Seat Performance Hall Stage	2,210 sf	36.00	79,560			
	- Gallery Spaces	1,235 sf	43.00	53,105			
	- Lobbies/circulation	2,055 sf	53.00	108,915			
	- Sound & light locks	105 sf	58.00	6,090			
	- Public restrooms	545 sf	132.00	71,940			
	- Storage	445 sf	10.00	4,450			
	- Back-of-house circulation	365 sf	10.00	3,650			
	- Inaccessible	185 sf		0			
7.0.2	Miscellaneous:						
	- performance equipment accommodation	allowance		50,000			
	- interior signage and donor recognition	allowance		20,000			
	- scaffolding (auditorium)	allowance		50,000			
	- interior mockups	allowance		w/7.0.1			
	- rough carpentry	allowance		10,000			
	- lockers (w/FF&E)			excluded			
				$870,045			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

	SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
	Quantity	Rate	Amount	Quantity	Rate	Amount
8.0 MECHANICAL						
8.1 PLUMBING	allowance		95,000			
8.2 FIRE PROTECTION	allowance		85,000			
8.3 HVAC and CONTROLS	allowance		685,000			
			$865,000			
9.0 ELECTRICAL						
9.1 ELECTRICAL	allowance		860,000			
			$860,000			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

	SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
	Quantity	Rate	Amount	Quantity	Rate	Amount
WFA RENOVATIONS						
1.0 Demolition						
1.1 Asbestos abatement (if required)			excluded			
1.2 Selective demolition:	allowance		100,000			
- demolish existing partitions	*15,150 sf*					
- remove existing doors	*34 ea*					
- remove existing WC cubicles	*0 ea*					
- remove existing WC's	*0 ea*					
- remove existing urinals	*0 ea*					
- remove existing urinal screen	*0 ea*					
- remove existing vanities	*0 ea*					
- remove existing vanity counter top	*0 lf*					
- area of existing floor finish	*43,530 sf*					
- area of existing ceiling finish	*43,530 sf*					
2.0 Structure						
2.1 Allowance for structural requirements where necessary	allowance		20,000			
3.0 Exterior Skin						
3.1 Strip existing and install new roof to WFA Building	43,530 sf	16.00	excluded			
3.2 Apply various profiles of heavy gage metal panels to existing concrete Double-T walls including all steel channel girt framing	10,000 sf	30.00	excluded			
3.3 Clean all other existing exterior surfaces	allowance		10,000			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

	SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
	Quantity	Rate	Amount	Quantity	Rate	Amount
3.0 Exterior Skin (Cont'd)						
3.4 New main entrance addition (1,430sf):						
- slab-on-grade and foundations	1,430 sf	22.00	eliminated			
- steel frame	5.72 tns	3,700.00	eliminated			
- metal roof deck	1,430 sf	3.00	eliminated			
- storefront glazing	1,421 sf	50.00	eliminated			
- standard flat roof	1,430 sf	20.00	eliminated			
- exterior glass entry doors	4 lvs	5,500.00	eliminated			
- interior glass partitions	261 sf	40.00	eliminated			
- interior glass doors	2 lvs	4,500.00	eliminated			
- miscellaneous caulking, angles, firesafing etc.	allowance		eliminated			
- floor finish	1,430 sf	10.00	eliminated			
- wall finish	650 sf	15.00	eliminated			
- ceiling finish	1,430 sf	15.00	eliminated			
- electrical (lighting, power etc.)	allowance		eliminated			
- mechanical (fire protection, hvac, etc.)	allowance		eliminated			
4.0 Interior Partitions and Doors						
4.1 New partitions	10,305 sf	12.00	123,700			
4.2 New doors	26 lvs	2,000.00	52,000			
5.0 Interiors						
7.1 Music Rehearsal Studio:						
- floor finish, including allowance for bases	1,790 sf	25.00	44,800			
- ceiling finish	1,790 sf	15.00	26,900			
- wall finish	2,550 sf	22.00	56,100			
- specialties/miscellaneous etc.	allowance		18,000			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

	SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
	Quantity	Rate	Amount	Quantity	Rate	Amount
5.0 Interiors (Cont'd)						
7.2 Public restrooms:						
- floor finish, including allowance for bases	120 sf	17.00	2,000			
- ceiling finish	120 sf	12.00	1,400			
- wall finish	540 sf	15.00	8,100			
- specialties:						
- counter tops	8 lf	500.00	4,000			
- standard toilet partition	4 ea	1,250.00	5,000			
- ADA toilet partition	2 ea	1,500.00	3,000			
- urinal screen	1 ea	800.00	800			
- toilet paper dispenser	6 ea	150.00	900			
- soap dispenser	4 ea	150.00	600			
- paper towel dispenser/disposal	2 ea	700.00	1,400			
- set grab bars	2 ea	500.00	1,000			
- sanitary napkin dispenser	1 ea	450.00	500			
- sanitary napkin disposal	4 ea	150.00	600			
- plate glass mirror to counters	32 sf	20.00	600			
7.3 Practice rooms:						
- floor finish, including allowance for bases	865 sf	20.00	17,300			
- ceiling finish	865 sf	20.00	17,300			
- wall finish	3,828 sf	27.50	105,300			
- specialties/miscellaneous etc.	allowance		17,300			
7.4 Piano studio:						
- floor finish, including allowance for bases	740 sf	20.00	14,800			
- ceiling finish	740 sf	20.00	14,800			
- wall finish	1,320 sf	27.50	36,300			
- specialties/miscellaneous etc.	allowance		11,100			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

	SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
	Quantity	Rate	Amount	Quantity	Rate	Amount
5.0 Interiors (Cont'd)						
7.5 Music library:			eliminated			
- floor finish, including allowance for bases						
- ceiling finish						
- wall finish						
- specialties/miscellaneous etc.						
7.6 Classroom:						
- floor finish, including allowance for bases	2,310 sf	20.00	46,200			
- ceiling finish	2,310 sf	10.00	23,100			
- wall finish	2,305 sf	12.50	28,800			
- specialties/miscellaneous etc.	allowance		16,200			
7.7 Shared classroom:						
- floor finish, including allowance for bases	690 sf	20.00	13,800			
- ceiling finish	690 sf	10.00	6,900			
- wall finish	1,250 sf	12.50	15,600			
- specialties/miscellaneous etc.	allowance		4,800			
7.8 2D studio:						
- floor finish, including allowance for bases	4,600 sf	3.00	13,800			
- ceiling finish	4,600 sf	5.00	23,000			
- wall finish	4,825 sf	3.00	14,500			
- specialties/miscellaneous etc.	allowance		27,600			
7.9 3D studio:						
- floor finish, including allowance for bases	1,175 sf	3.00	3,500			
- ceiling finish	1,175 sf	5.00	5,900			
- wall finish	1,680 sf	3.00	5,000			
- specialties/miscellaneous etc.	allowance		7,100			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

	SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
	Quantity	Rate	Amount	Quantity	Rate	Amount
5.0 Interiors (Cont'd)						
7.10 Offices/Reception/Conference Room:						
- floor finish, including allowance for bases	2,880 sf	4.50	13,000			
- ceiling finish	2,880 sf	4.50	13,000			
- wall finish	12,312 sf	2.00	24,600			
- specialties/miscellaneous etc.	allowance		10,800			
7.11 Art office:						
- floor finish, including allowance for bases	285 sf	4.50	1,300			
- ceiling finish	285 sf	4.50	1,300			
- wall finish	1,150 sf	2.00	2,300			
- specialties/miscellaneous etc.	allowance		900			
7.12 Office bullpen:						
- floor finish, including allowance for bases	310 sf	4.50	1,400			
- ceiling finish	310 sf	4.50	1,400			
- wall finish	972 sf	2.00	1,900			
- specialties/miscellaneous etc.	allowance		900			
7.13 Break Area:			eliminated			
- floor finish, including allowance for bases						
- ceiling finish						
- wall finish						
- specialties/miscellaneous etc.						
7.14 Kiln yard:			eliminated			
- floor finish, including allowance for bases						
- ceiling finish						
- wall finish						
- specialties/miscellaneous etc.						

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

	SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
	Quantity	Rate	Amount	Quantity	Rate	Amount
5.0 Interiors (Cont'd)						
7.15 Ceramics:						
- floor finish, including allowance for bases	1,925 sf	1.00	1,900			
- ceiling finish	1,925 sf	1.00	1,900			
- wall finish	2,305 sf	2.00	4,600			
- specialties/miscellaneous etc.	allowance		12,500			
7.16 Circulation:						
- floor finish, including allowance for bases	1,675 sf	3.50	5,900			
- ceiling finish	1,675 sf	5.00	8,400			
- wall finish	5,530 sf	2.00	11,100			
- specialties/miscellaneous etc.	allowance		3,400			
7.17 Vestibules:			eliminated			
- floor finish, including allowance for bases						
- ceiling finish						
- wall finish						
- specialties/miscellaneous etc.						
7.18 Janitor:			eliminated			
- floor finish, including allowance for bases						
- ceiling finish						
- wall finish						
- specialties/miscellaneous etc.						
7.19 Classroom storage:			eliminated			
- floor finish, including allowance for bases						
- ceiling finish						
- wall finish						
- specialties/miscellaneous etc.						

Concept Design Estimate **14 September 2017**

	SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
	Quantity	Rate	Amount	Quantity	Rate	Amount
5.0 Interiors (Cont'd)						
7.20 VA/theater storage:						
- floor finish, including allowance for bases	345 sf	2.00	700			
- ceiling finish	345 sf	2.00	700			
- wall finish	995 sf	2.00	2,000			
- specialties/miscellaneous etc.	allowance		1,000			
7.21 Chairs/stands storage:						
- floor finish, including allowance for bases	360 sf	2.00	700			
- ceiling finish	360 sf	2.00	700			
- wall finish	996 sf	2.00	2,000			
- specialties/miscellaneous etc.	allowance		900			
7.22 TBD:						
- floor finish, including allowance for bases	1,285 sf	3.00	3,900			
- ceiling finish	1,285 sf	4.00	5,100			
- wall finish	3,720 sf	2.00	7,400			
- specialties/miscellaneous etc.	allowance		3,200			
7.23 Various storage spaces:						
- floor finish, including allowance for bases	65 sf	3.00	200			
- ceiling finish	65 sf	4.00	300			
- wall finish	430 sf	2.00	900			
- specialties/miscellaneous etc.	allowance		200			
7.24 Broadcast & Printing Labs:						
- floor finish, including allowance for bases	1,275 sf	5.00	6,400			
- ceiling finish	1,275 sf	4.00	5,100			
- wall finish	1,800 sf	2.00	3,600			
- specialties/miscellaneous etc.	allowance		12,800			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

Concept Design Estimate **14 September 2017**

	SEPTEMBER 2017 CONCEPT			SCHEMATIC DESIGN (TBD)		
	Quantity	Rate	Amount	Quantity	Rate	Amount
5.0 Interiors (Cont'd)						
7.25 Dressing rooms:						
- floor finish, including allowance for bases	520 sf	13.00	6,800			
- ceiling finish	520 sf	4.00	2,100			
- wall finish	1,765 sf	7.00	12,400			
- specialties/miscellaneous etc.	allowance		23,400			
7.26 Multimedia/Wingspan:			eliminated			
- floor finish, including allowance for bases						
- ceiling finish						
- wall finish						
- specialties/miscellaneous etc.						
7.27 Portrait studio:			eliminated			
- floor finish, including allowance for bases						
- ceiling finish						
- wall finish						
- specialties/miscellaneous etc.						
7.28 Rough carpentry	allowance		20,000			
7.29 Cutting and patching	allowance		15,000			
7.30 Interior sunshading systems	allowance		5,000			
7.31 Interior signage	allowance		20,000			
8.0 Mechanical						
8.1 Plumbing and Drainage	allowance		145,000			
8.2 Fire Protection	allowance		175,000			
8.3 H.V.A.C. & Controls	allowance		510,000			
9.0 Electrical	allowance		545,000			

Fine Arts Level II Planning Study at LCCC

Laramie, WY

SPACE PROGRAM ANALYSIS

14 September 2017

Cost+Plus
PROJECT & COST MANAGEMENT OF CULTURAL FACILITIES

Laramie County Community College - Fine Arts Planning
Laramie, WY

PRELIMINARY SPACE PROGRAM

(Semple Brown Revised Concept Design Plans received 8/31/2017)

Interior Zones	NET TOTAL NSF	Gross Factor	PROGRAM GSF	Percentage of Total GFA
Zone 1.0 Public Areas/Front of House	2,304	1.13	2,600	23.0%
Zone 2.0 Gallery of Contemporary Art	1,123	1.10	1,235	10.9%
Zone 3.0 Performance Hall	5,891	1.10	6,480	57.3%
Zone 4.0 Stage Support / Services / Storage	405	1.10	445	3.9%
Zone 5.0 Performer Support	0	1.00	0	0.0%
Zone 6.0 Fabrication Workshops	0	1.00	0	0.0%
Zone 7.0 Administration Area	0	1.00	0	0.0%
Zone 8.0 Non-Assignable Space			550	4.9%
TOTALS	**9,722**	**1.16**	**11,310**	**100.0%**

1.0	**Public Areas/Front of House**				
1.01	Lobby	1,868	1.10	2,055	
1.02	Entrance Vestibule	0	1.10	0	
1.03	Bars/Concessions (w/Lobby)	0	1.10	0	
1.04	Vending (w/Lobby)	0	1.10	0	
1.05	Ticketing (w/Lobby)	0	1.10	0	
1.06	House Manager's Office (none shown)	0	1.10	0	
1.07	Ushers' Locker (none shown)	0	1.10	0	
1.08	Kitchen (none shown)	0	1.10	0	
1.09	Womens Restroom	248	1.25	310	
1.10	Mens Restroom	188	1.25	235	
	Subtotal Zone 1.0	**2,304**	**1.13**	**2,600**	

2.0	**Gallery of Contemporary Art**				
2.01	Gallery	1,123	1.10	1,235	
	Subtotal Zone 2.0	**1,123**	**1.10**	**1,235**	

3.0	**Performance Hall**				
3.01	Audience Seating	3,786	1.10	4,165	
3.02	Stage	2,009	1.10	2,210	
3.03	Control Booth	0	1.10	0	
3.04	Sound & Light Lock	95	1.10	105	
	Subtotal Zone 3.0	**5,891**	**1.10**	**6,480**	

Cost+Plus
PROJECT & COST MANAGEMENT OF CULTURAL FACILITIES

Laramie County Community College - Fine Arts Planning
Laramie, WY

PRELIMINARY SPACE PROGRAM

(Semple Brown Revised Concept Design Plans received 8/31/2017)

Interior Zones		NET TOTAL NSF	Gross Factor	PROGRAM GSF	Percentage of Total GFA
4.0	**Stage Support / Services / Storage**				
4.01	Loading Dock (exterior)	0	1.10	0	
4.02	Storage	405	1.10	445	
	Subtotal Zone 4.0	**405**	**1.10**	**445**	
5.0	**Performer Support**				
5.01	Dressing Rooms (none shown)	0	1.10	0	
5.02	Green Room (none shown)	0	1.10	0	
5.03	Wardrobe (none shown)	0	1.10	0	
5.04	Janitor's Closet	0	1.10	0	
	Subtotal Zone 5.0	**0**	**1.00**	**0**	
6.0	**Fabrication Workshops**				
6.01	Fabrication/Scene Shop (none shown)	0	1.10	0	
	Subtotal Zone 6.0	**0**	**1.00**	**0**	
7.0	**Administration Area**				
7.01	Admin/Offices (none shown)	0	1.10	0	
	Subtotal Zone 7.0	**0**	**1.00**	**0**	
8.0	**Non-Assignable Space**				
8.01	Back-of-House Circulation	3.23%		365	
8.02	Front-of-House Circulation				
8.03	Inaccessible Space	1.64%		185	
8.04	Mechanical and Electrical Space - none shown (assumes use of rooftops)	0.00%		0	
	Subtotal Zone 8.0			**550**	

Cost+Plus
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