Surry Community College

Sciences and Teaching Auditorium Advance Planning

Dobson, North Carolina

LITTLE
DIVERSIFIED ARCHITECTURAL CONSULTING

Contents

01 *Acknowledgements*

THIS REPORT WAS PRODUCED FOR SURRY COMMUNITY COLLEGE AS A RESULT OF THE ADVANCED PLANNING EFFORTS PERFORMED FOR THE PROPOSED SCIENCES & TEACHING AUDITORIUM. WE THANK THOSE INDIVIDUALS THAT HAVE CONTRIBUTED TIME, INTEREST AND EXPERIENCE IN SHAPING A SUCCESSFUL PLAN.

COLLEGE STEERING COMMITTEE

Mr. Tim Dockery.....*Chair, Steering Committee, Local Business Owner / Community Volunteer / College Supporter*
Mr. Gene Rees.....*Chair, Board of Trustees*
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Dr. Frank Sells.....*Past-President, Community Volunteer / College Supporter*
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Mrs. Marion Venable.....*Executive Director, SCC Foundation*
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Mrs. Susan Pendergraft.....*Vice President of Administrative Services*
Mr. Curtis Workman.....*Director, Physical Facilities*
Mr. Michael Ayers.....*Chair, Sciences Division*

LITTLE DESIGN TEAM

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Marty Mobley, LEED AP..... *Electrical Engineer*
Scott Miller..... Landscape Designer *(Miller Landscape)*
Paul Fidishun..... Landscape Designer *(Miller Landscape)*

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02 *Executive Summary*

02

OVERVIEW

This Advanced Planning document is the product of a concentrated planning process that was established to provide the College with the basis for a Conceptual Design of the proposed new Sciences and Teaching Auditorium as Phase II of the Surry Community College's NC Center for Viticulture & Enology. This facility was identified, as Priority 1 in the College's recently updated Facilities Master Plan which built upon Long Range Planning efforts completed in early 2008. This document outlines a preliminary design concept that accommodates space needs, current and planned site context considerations, energy conservation strategies, and schedule and cost constraints. This planning process consists of the following efforts:

- A Visioning Session which established the College's goals for (1) an auditorium performance and teaching facility to serve the college and community, and (2) improved science facilities that allow for opportunities for new and existing program growth.
- Detailed space programming sessions with key stakeholders which validated original programming assumptions developed during the master planning process and provided additional program/department level detail for space planning.
- Site visitation and analysis aimed at providing a deeper understanding of organizational, academic and architectural context for space planning and building design efforts.
- Development of space planning diagrams which aided the design team and steering committee in better understanding departmental adjacencies and helped expose design opportunities.
- Exploration of design concepts that enabled an integration of performance requirements, academic requirements, science needs, campus design principles, and engineering and cost strategies.
- Recommendations for potential energy and water conservation strategies based on building and site conditions.
- Development of a conceptual building design for the Surry Community College Sciences and Teaching Auditorium

CONCLUSIONS

This final Sciences and Teaching Auditorium Advance Planning document is for the proposed Phase II of the NC Center for Viticulture & Enology to be located adjacent to Phase I near the main campus entrance of Surry Community College. Representing the hub for the College's Viticulture and Enology Program – one of two degree programs on the East Coast – the Viticulture & Enology Center will serve the state with the support system needed to grow and develop the wine industry. The Sciences and Teaching Auditorium will follow Phase I in design and construction and will enclose a common courtyard space to be used for outdoor college and community events. This second phase project will add a 1,000 seat Auditorium which can host seminars, conventions, and conferences for the wine industry and related agri-tourism opportunities for North Carolina, the nation, and the world. The Auditorium will also provide a much needed large meeting and teaching space for college functions. In addition the Sciences and Teaching Auditorium will provide approximately 26,000 square feet of needed classroom, lab and office space for the College's science programs and for future growth. Surry Community College has evaluated the conceptual design resulting from the process and has determined that this Advance Planning Document will provide the framework for future funding and development efforts for the Sciences and Teaching Auditorium.

03 *Introduction & Design Methodology*

03

DESIGN METHODOLOGY

The approach to this project followed Little's design methodology which is characterized by collaboration between the Design Team and Surry Community College. This effort included the following steps in creating a successful design concept:

01 Vision

- Collaborate with Surry Community College to identify advance planning goals and objectives.
- Uncover hidden opportunities to create greater value for the Sciences & Teaching Auditorium.
- Develop and confirm success measurements that will guide the advance planning process.

02 Discover

- Collaborate with Surry Community College to establish project criteria and building program.
- Identify special knowledge that will generate the most innovative design response.
- Gather relevant information about performance facilities and the college's science programs.

03 Create

- Perform site studies relative to existing campus conditions and the future campus master plan.
- Generate innovative design concepts for evaluation by Surry Community College.
- Identify energy and water conservation strategies for the Sciences & Teaching Auditorium.

04 Execute

- Document the building design through through site plans, floor plans, elevations, and renderings.
- Prepare narrative of project requirements including basis of design for the Sciences and Teaching Auditorium.
- Provide budget narrative that reconciles the project scope and project funding.

These activities provided a holistic approach necessary for a campus facility of this complexity, which integrates a performance and teaching facility, numerous science departments and academic support spaces.

04 *Visioning Goals & Objectives*

VISIONING SESSION

The Design Team led the College's Design Steering Committee in a Visioning Session designed to validate initial program assumptions and inform design direction for the Sciences and Teaching Auditorium. In this session the group reviewed relevant findings and direction from the recently updated Facilities Master Plan. The group then discussed specific objectives of the Sciences and Teaching Auditorium advanced planning and established the following goals for the project:

AUDITORIUM

1. An Auditorium is needed by the community to support a wide range of arts and entertainment, for trade shows, and to support large meeting functions associated with the winemaking industry.
2. An Auditorium is needed by the college for large group functions including graduation ceremonies (college and high schools), lectures, and performing arts.
3. An Auditorium would help with marketing and recruitment for the college.
4. An Auditorium would be likely to get community support if it is viewed as a facility for community functions.
5. The Auditorium should be designed in a way that it connects the Viticulture & Enology Center with the rest of the campus.
6. The Sciences and Teaching Auditorium should have a "wow" factor.

SCIENCE BUILDING

1. The Sciences Building should be designed to be a state-of-the-art facility at the time it is complete.
2. The Sciences Building should be designed to be a facility that promotes student learning. It should also allow students to be hands-on, collaborative and investigative.
3. The Sciences Building should provide space for future growth and be flexible. There is a great need for more storage space.
4. Space for the Horticulture Program should be included and a possible greenhouse.

5 : Surry Community College Sciences & Teaching Auditorium Advanced Planning *Dobson, North Carolina*

05 *Assessment of Space Requirements*

STAKEHOLDERS MEETING
Following the visioning session, the design team progressed into specific department level program needs for the science building spaces to develop program space requirements on a group by group basis. An investigation was conducted into the size and function of similar programs and building functions. A primary stakeholders meeting was conducted which included key staff and department representatives invited by the Design Steering Committee.

This group discussed the expectations of the individual departments planning to occupy space in the Sciences and Teaching Auditorium as well as projected space needs. The session included discussion of:

1. Results of program benchmarking
2. Required and preferred adjacencies of each group
3. Specific space types
4. Department and room adjacencies
5. Relative space/room sizes and quantities

This meeting produced a specific list of space requirements based upon staff and program projections.

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6 : Surry Community College Sciences & Teaching Auditorium Advanced Planning *Dobson, North Carolina*

AUDITORIUM: FRONT OF HOUSE			
SERIES #	**SPACE**	**RECOMMENDED NET SQ. FEET**	**NOTES ON RECOMMENDED NSF**
A100	Public Spaces		
101	Public lobby	5,000	1000 seats @ 5 nsf
102	Public circulation	3,000	1000 seats @ 3 nsf
103	Auditorium sound & light locks	-	in gross
104	Concessions	300	
105	Concessions storage	100	
106	Public restrooms (male)	400	10 units @ 40 sf
107	Public restrooms (female)	1,000	20 units @ 50 sf
108	Storage (programs, rentals, coats)	120	
109	Front-of-house furniture storage	120	
110	House management / First-aid	150	
111	Box office - sales	180	3 ticket windows
112	Box office - manager's office	200	

AUDITORIUM: HOUSE			
SERIES #	**SPACE**	**RECOMMENDED NET SQ. FEET**	**NOTES ON RECOMMENDED NSF**
A200	Performance Spaces		
201	Auditorium	10,000	1000 seats @ 10
202	Stage	3,600	40' deep x 90' wide, 60' to the grid
203	Stage apron	240	
204	Orchestra pit	432	24 musicians @ 18 nsf
205	House sound mix position	140	
206	Seat wagon storage	700	
207	Stage sound & light locks	-	in gross
208	Lighting control booth	120	
209	Sound control booth	120	
210	Projection booth	140	
211	Followspot booth	180	
212	Dimmer room	160	
213	Sound rack room	100	
214	FOH catwalks	-	in gross
215	Forestage grid	-	in gross, with designated "strong" points

AUDITORIUM: BACK OF HOUSE			
SERIES #	**SPACE**	**RECOMMENDED NET SQ. FEET**	**NOTES ON RECOMMENDED NSF**
A300	Stage Support		
301	Scenery dock (20' height) / storage	800	
302	Orchestra shell storage (24' high)	320	
303	Piano storage	120	
304	Musical instrument storage	150	
305	Stage manager's office	120	
306	Technical staff office	180	
307	Visiting production office	120	
308	Backstage restroom (male)	150	3 units @ 50 sf
309	Backstage restroom (female)	150	3 units @ 50 sf
310	Crew room	180	
311	Stage equipment storage	400	
312	Stage gridiron	-	in gross
313	Stage catwalks	-	in gross (two mid-rails, one loading)
314	Freight elevator	-	in gross

AUDITORIUM: BACK OF HOUSE			
SERIES #	**SPACE**	**RECOMMENDED NET SQ. FEET**	**NOTES ON RECOMMENDED NSF**
A400	Performer Support		
401	Performers' lounge	800	crew catering
402	Star dressing rooms	520	2 @ 260 sf; w/ toilet, shower, sink, sofa
403	12-person dressing rooms	1,200	2 @ 600 sf; w/ toilet, shower, sink, lockers
404	Canteen / Vending	50	
405	Wardrobe maintenance	300	
406	Laundry	120	

AUDITORIUM: BACK OF HOUSE			
SERIES #	**SPACE**	**RECOMMENDED NET SQ. FEET**	**NOTES ON RECOMMENDED NSF**
A500	Services		
501	Housekeeping closets	120	4 @ 30 sf
502	Backstage waiting	120	
503	Backstage security	100	
504	Fire panel, telephone switch	100	Internet hub
505	Truck dock / loading dock	-	in gross (2 semi-trailers and one bus)

AUDITORIUM: BACK OF HOUSE			
SERIES #	**SPACE**	**RECOMMENDED NET SQ. FEET**	**NOTES ON RECOMMENDED NSF**
A600	Rehearsal Room (optional)		
601	Rehearsal room	2,400	rehearsal, performance, meetings (24' high)
602	Storage	200	

AUDITORIUM: OVERALL	
	PROPOSED
NET SQUARE FEET	**32,800**
GROSSING FACTOR- 40%	**13,200**
GROSS SQUARE FEET	**46,000**

SCIENCE PROGRAM: CHEMISTRY					
SPACE	**REQUESTED**	**PROVIDED**	**SF PER SPACE**	**EXISTING**	**PROPOSED**
Classroom/Lab		2	1,000	2,000	2,000
Prep/Storage		1	300	300	300
Office		1	120	120	120
Classroom/Lab	1	1	1,000		1,000
Office	1	1	120		120

SCIENCE PROGRAM: PHYSICS					
SPACE	**REQUESTED**	**PROVIDED**	**SF PER SPACE**	**EXISTING**	**PROPOSED**
Classroom/Lab		1	1,000	1,000	1,000
Prep/Storage		1	200	200	200
Office		1	120	120	120
Classroom/Lab	1	1	1,000		1,000
Office	1	0			0

SCIENCE PROGRAM: BIOLOGY					
SPACE	**REQUESTED**	**PROVIDED**	**SF PER SPACE**	**EXISTING**	**PROPOSED**
Classroom/Lab		2	1,000	2,000	2,000
Prep/Storage		1	300	300	300
Office		1	120	120	120
Classroom/Lab	4	2	1,000		2,000

Red represents new program spaces

SCIENCE PROGRAM: MICROBIOLOGY					
SPACE	**REQUESTED**	**PROVIDED**	**SF PER SPACE**	**EXISTING**	**PROPOSED**
Classroom/Lab		1	1,000	1,000	1,000

SCIENCE PROGRAM: HORTICULUTRE					
SPACE	**REQUESTED**	**PROVIDED**	**SF PER SPACE**	**EXISTING**	**PROPOSED**
Classroom/Lab		2	1,000		2,000
Prep/Storage		1	300		300
Office		1	120		120
Greenhouse		1	1,000		1,000

SCIENCE PROGRAM: ANIMAL LAB TECHNOLOGY					
SPACE	**REQUESTED**	**PROVIDED**	**SF PER SPACE**	**EXISTING**	**PROPOSED**
Classroom/Lab		3	1,000		3,000
Animal Facility		1	500		500
Prep/Storage		1	300		300
Office		2	120		240

SCIENCE PROGRAM: SUPPORT					
SPACE	**REQUESTED**	**PROVIDED**	**SF PER SPACE**	**EXISTING**	**PROPOSED**
Student Commons		2	400		800
Faculty Lounge		1	325		325
Study Spaces		2	150		300
Mechanical		1	1,000		1,000

SCIENCE PROGRAM: OVERALL		
	EXISTING	**PROPOSED**
NET SQUARE FEET	**10,160**	**25,825**
GROSSING FACTOR- 25%		**8,530**
GROSS SQUARE FEET		**34,355**

Red represents new program spaces

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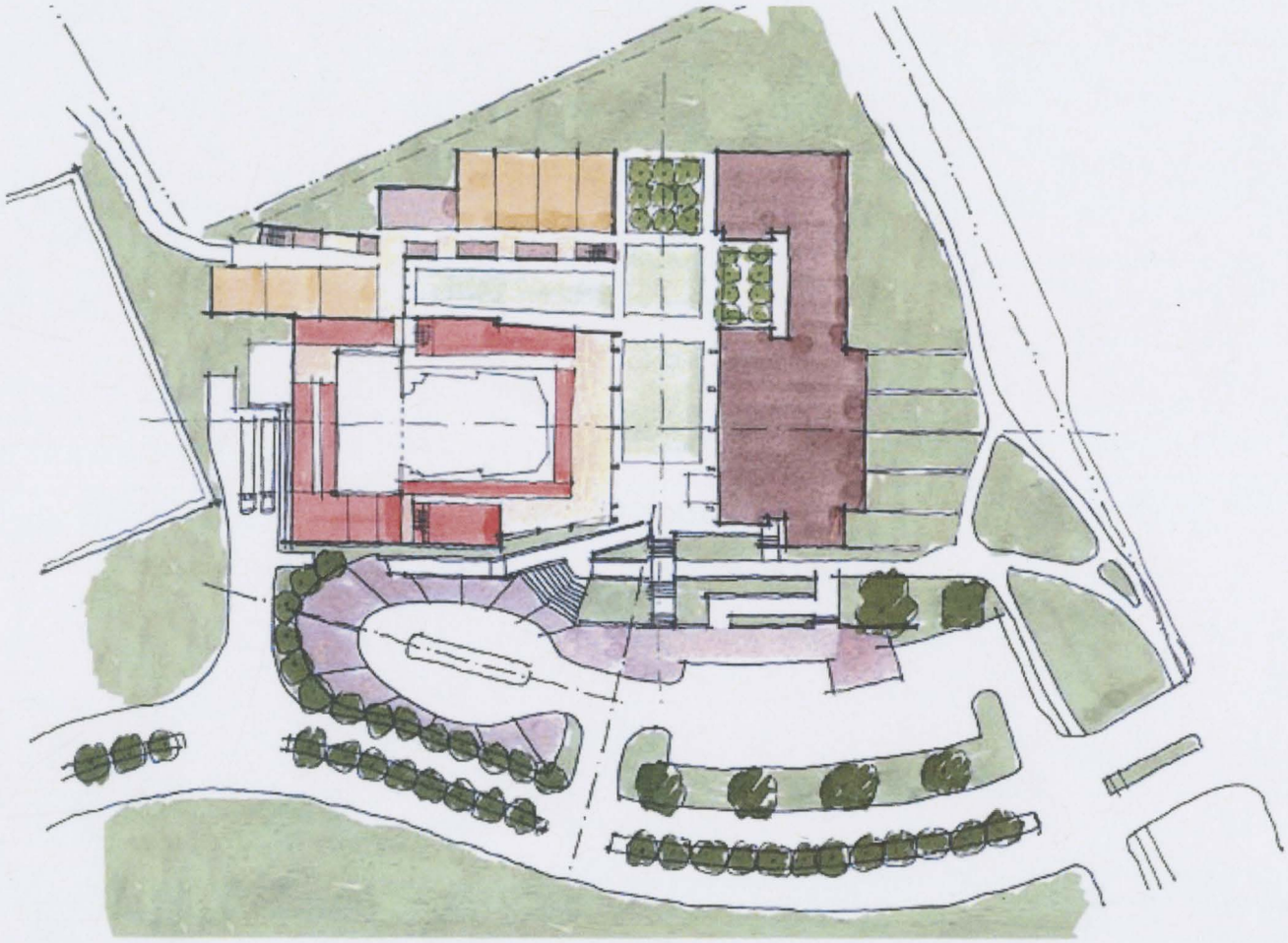
OPTION 1 : SITE PLAN

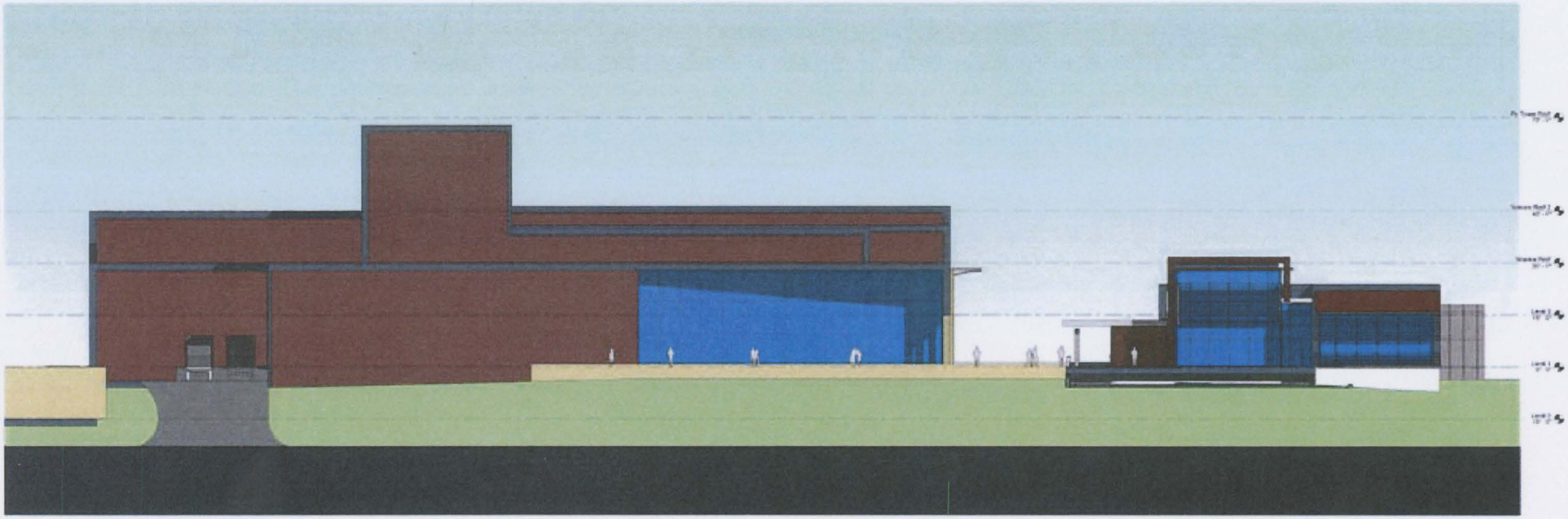


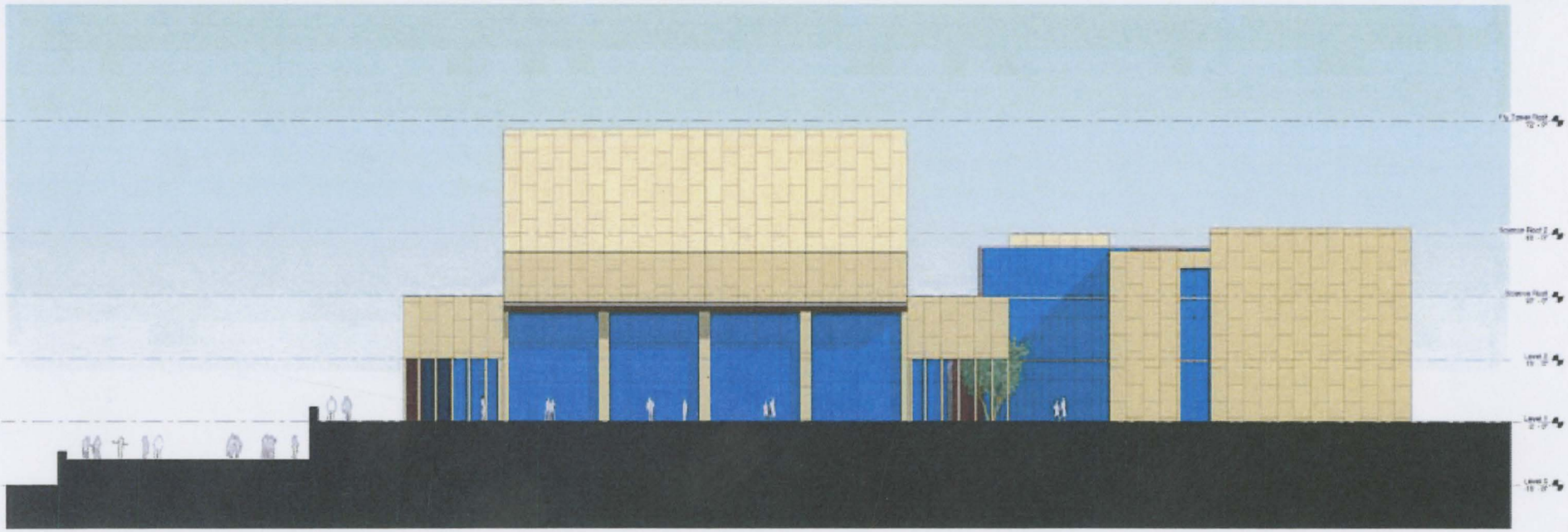
DESIGN CONCEPTS

The design team initially presented two block plan scenarios for review and comment by the college. As options were discussed and workflow/ adjacency models evolved, several iterations of a more detailed plan were generated along with floor plan diagrams and renderings to guide design concept development.

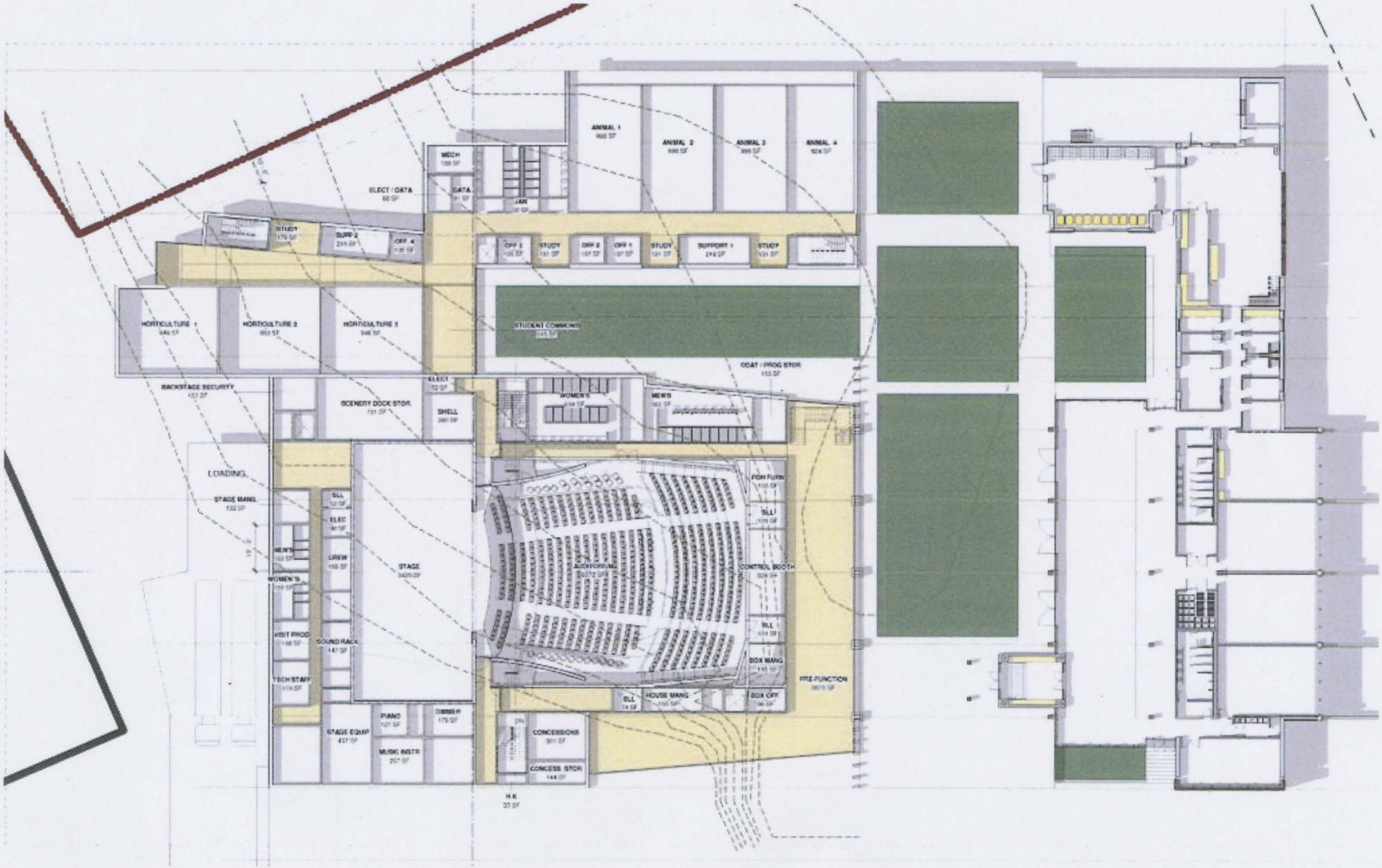
Shown are both of the initial scenarios presented to the committee.

OPTION 1 : SOUTH & EAST ELEVATIONS

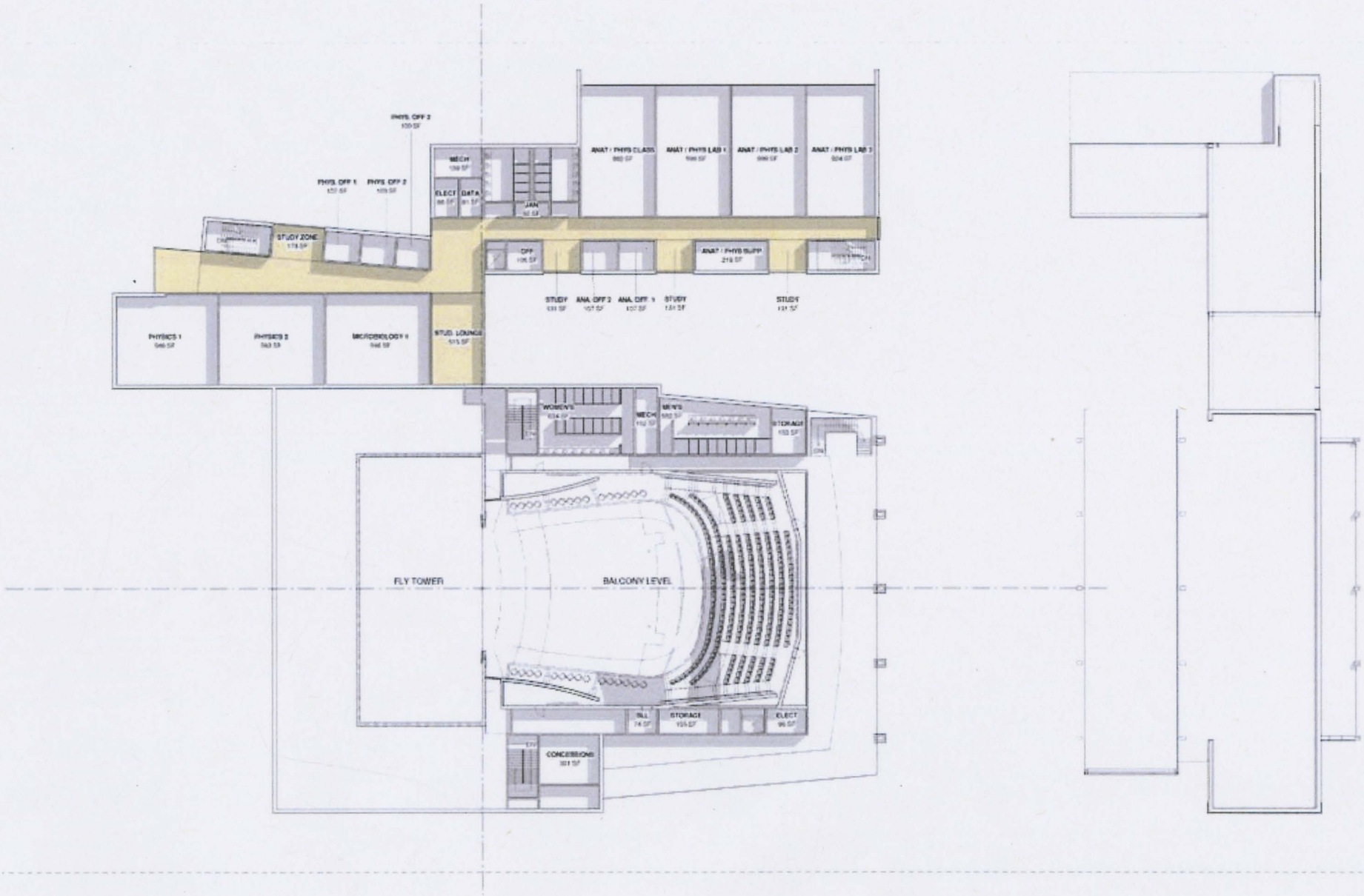




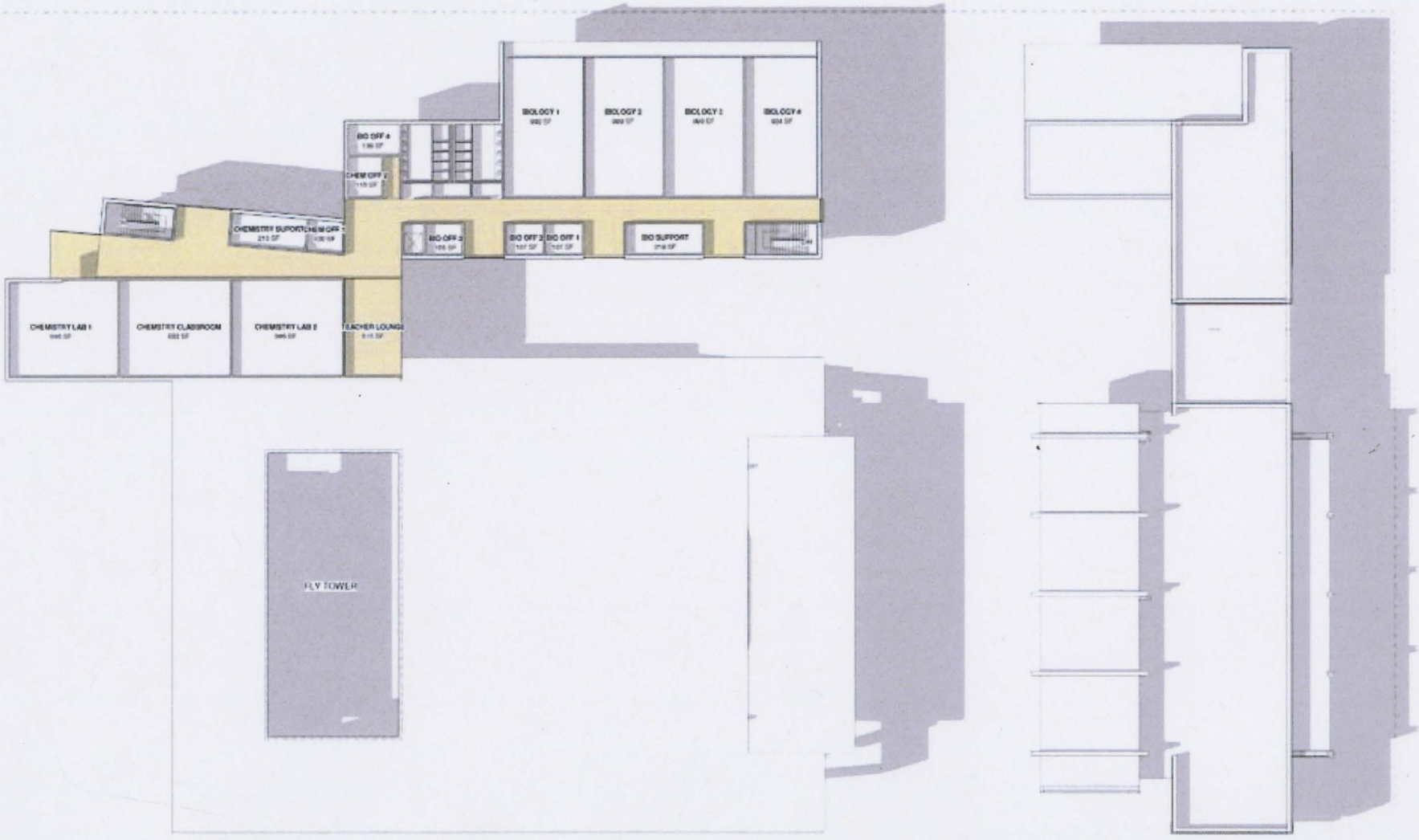
OPTION 1 : FLOOR PLAN - LEVEL 1



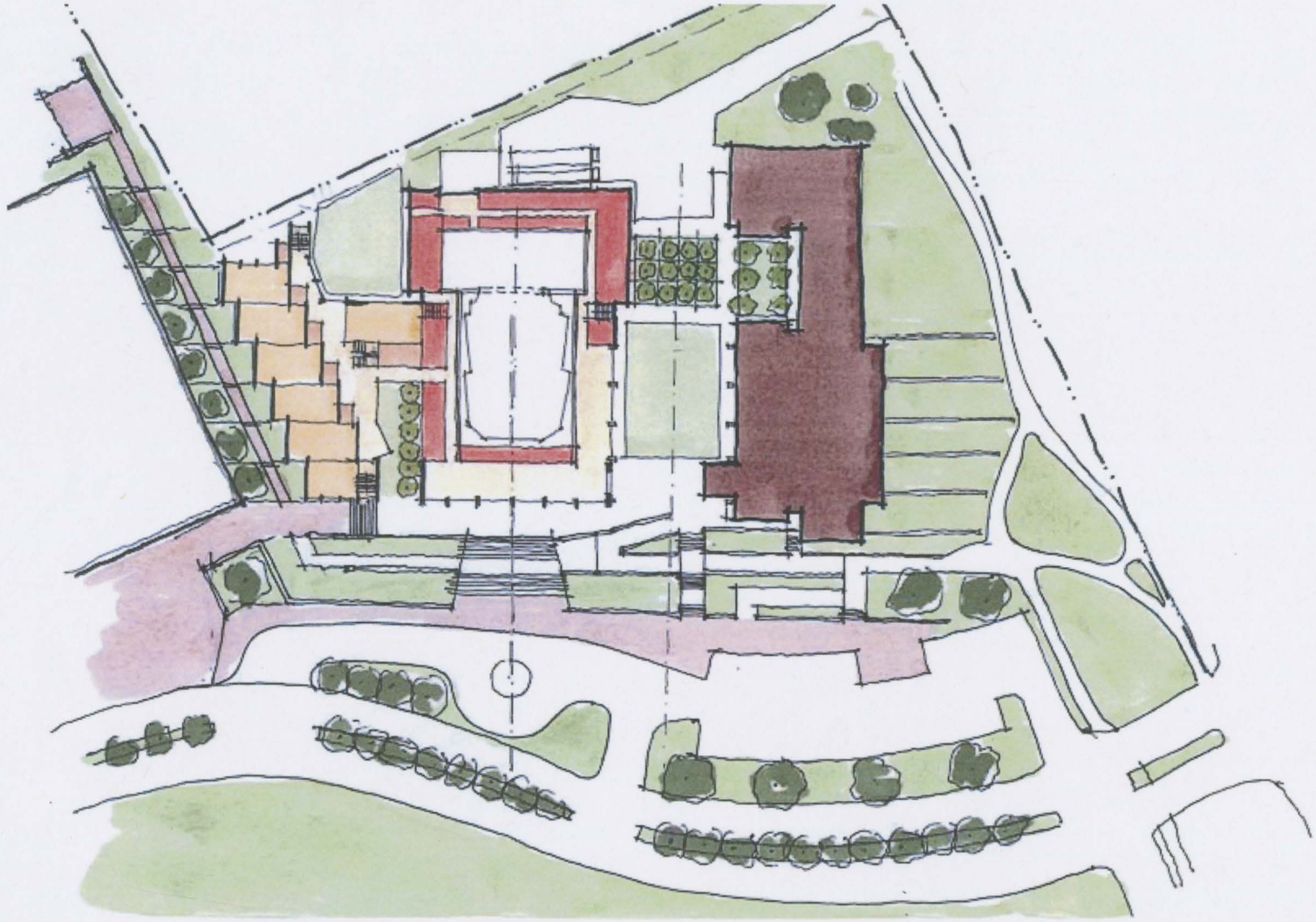
OPTION 1 : FLOOR PLAN - LEVEL 2



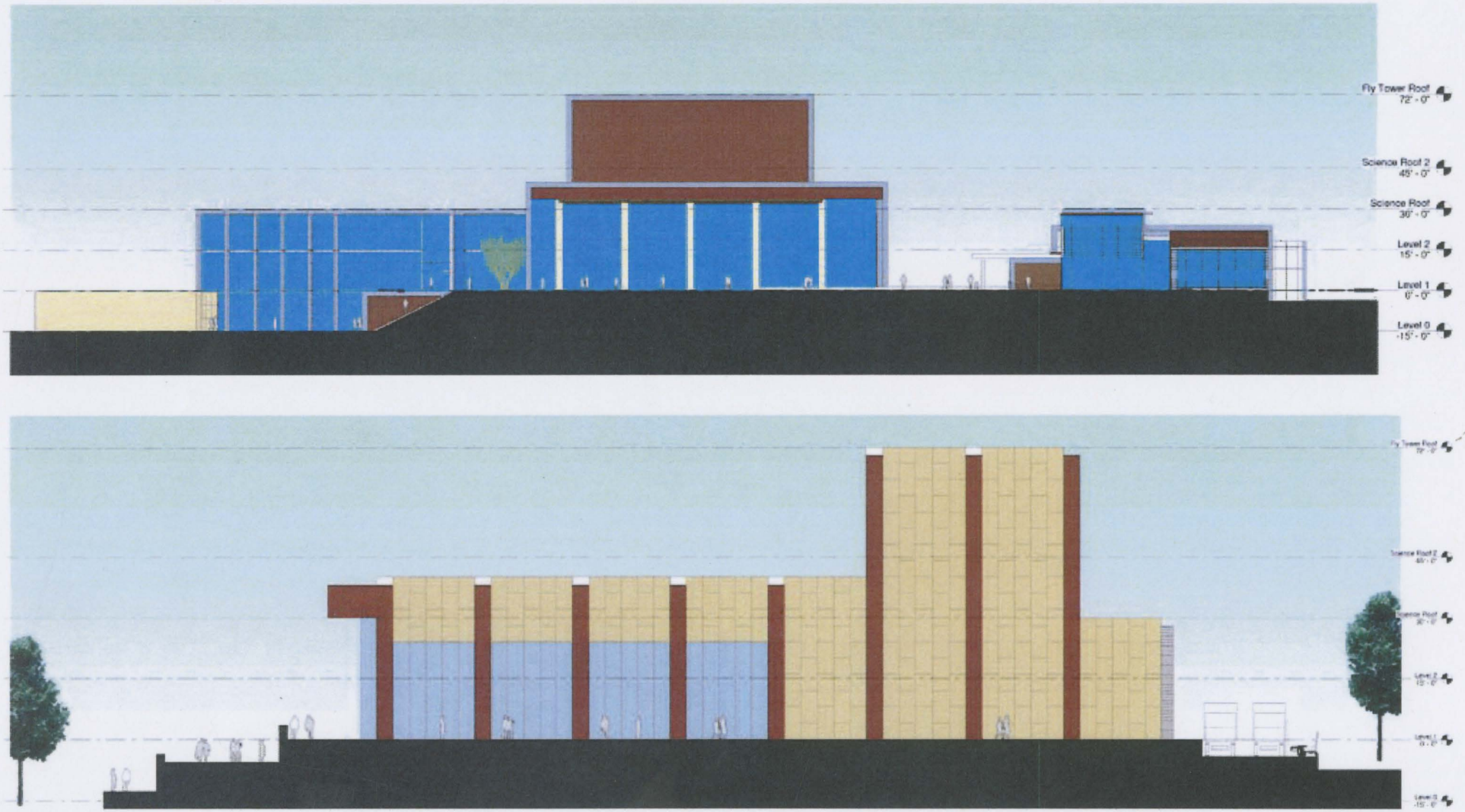
OPTION 1 : FLOOR PLAN - LEVEL 3



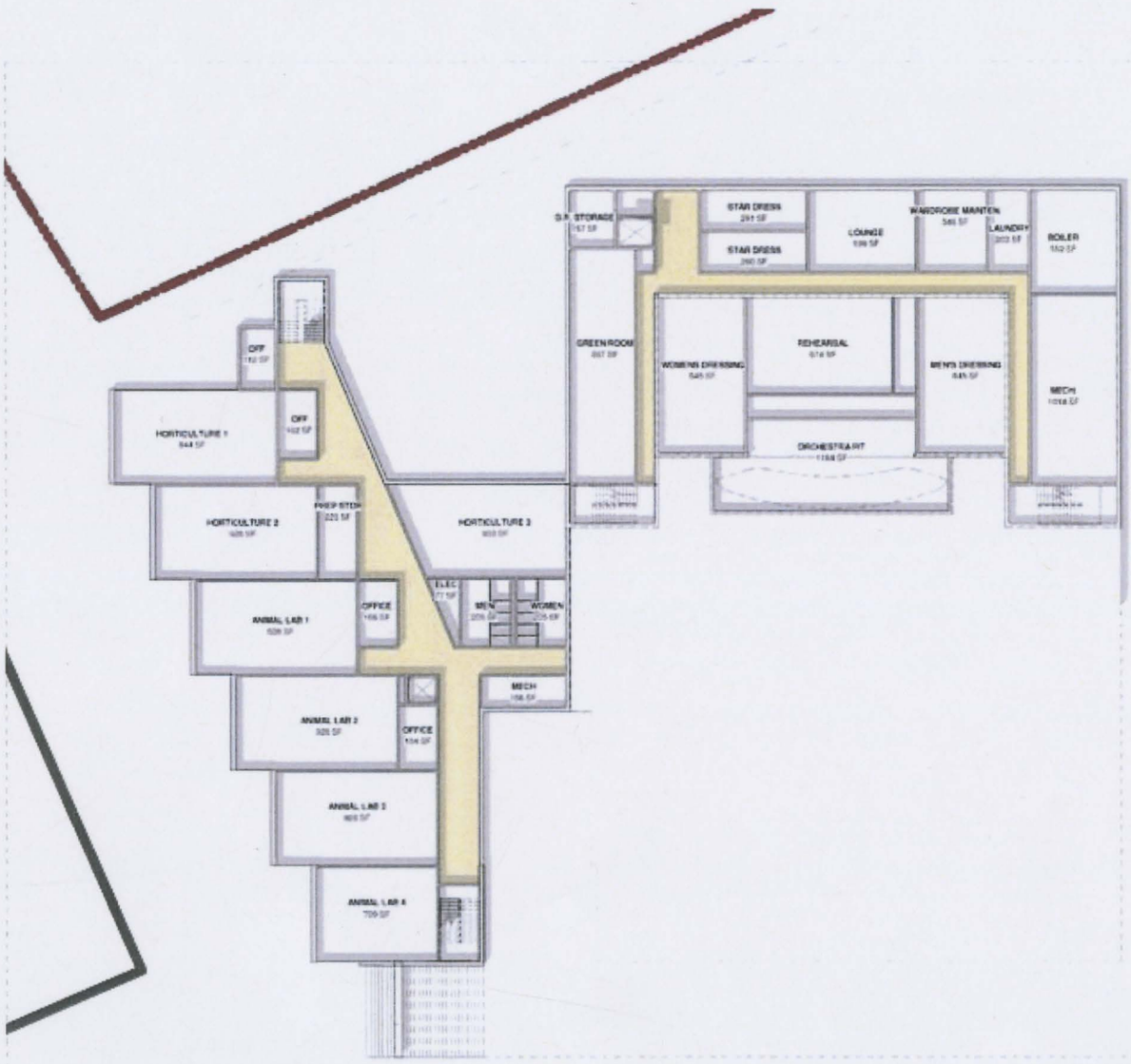
OPTION 2 : SITE PLAN



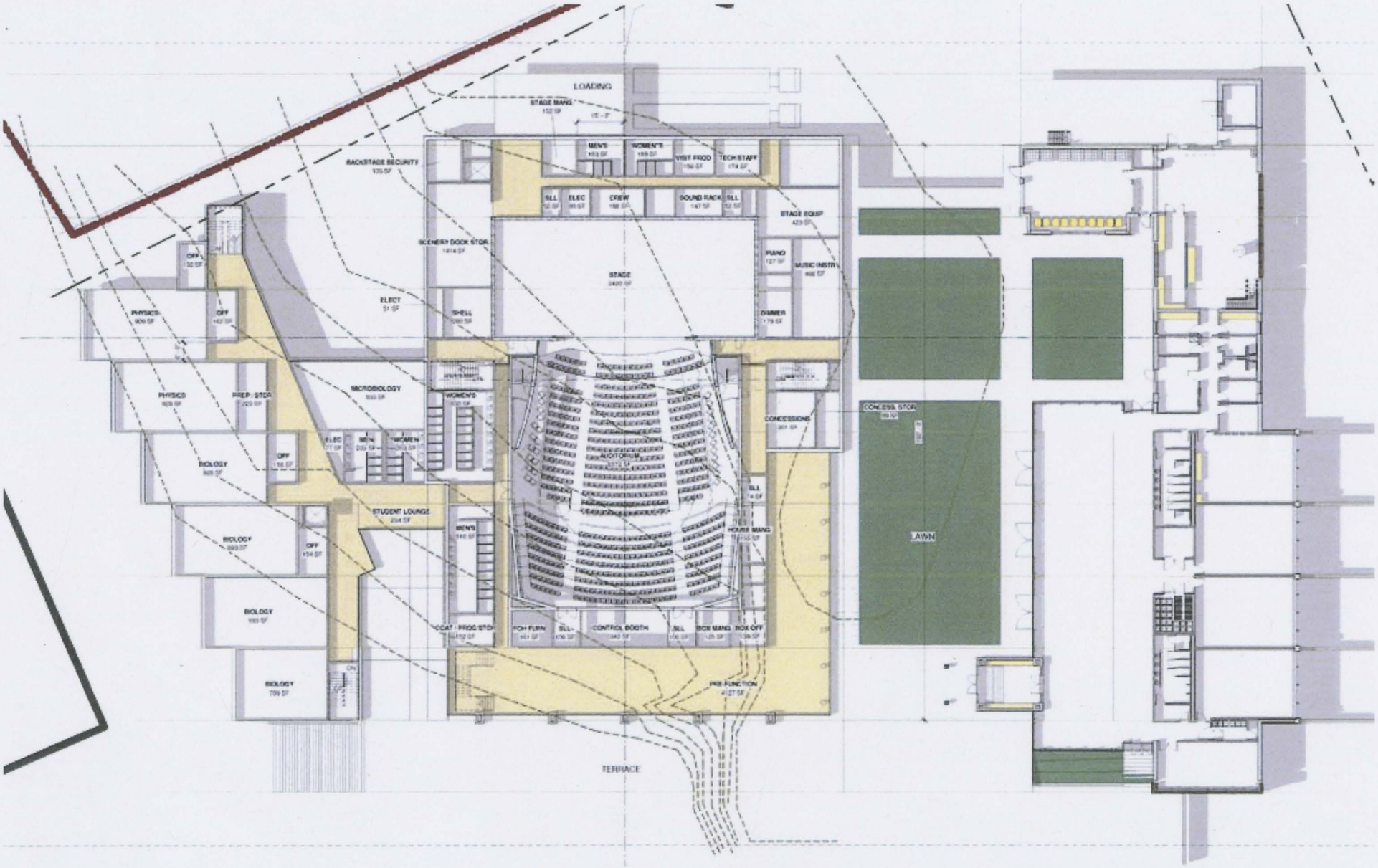
OPTION 2 : SOUTH & EAST ELEVATIONS



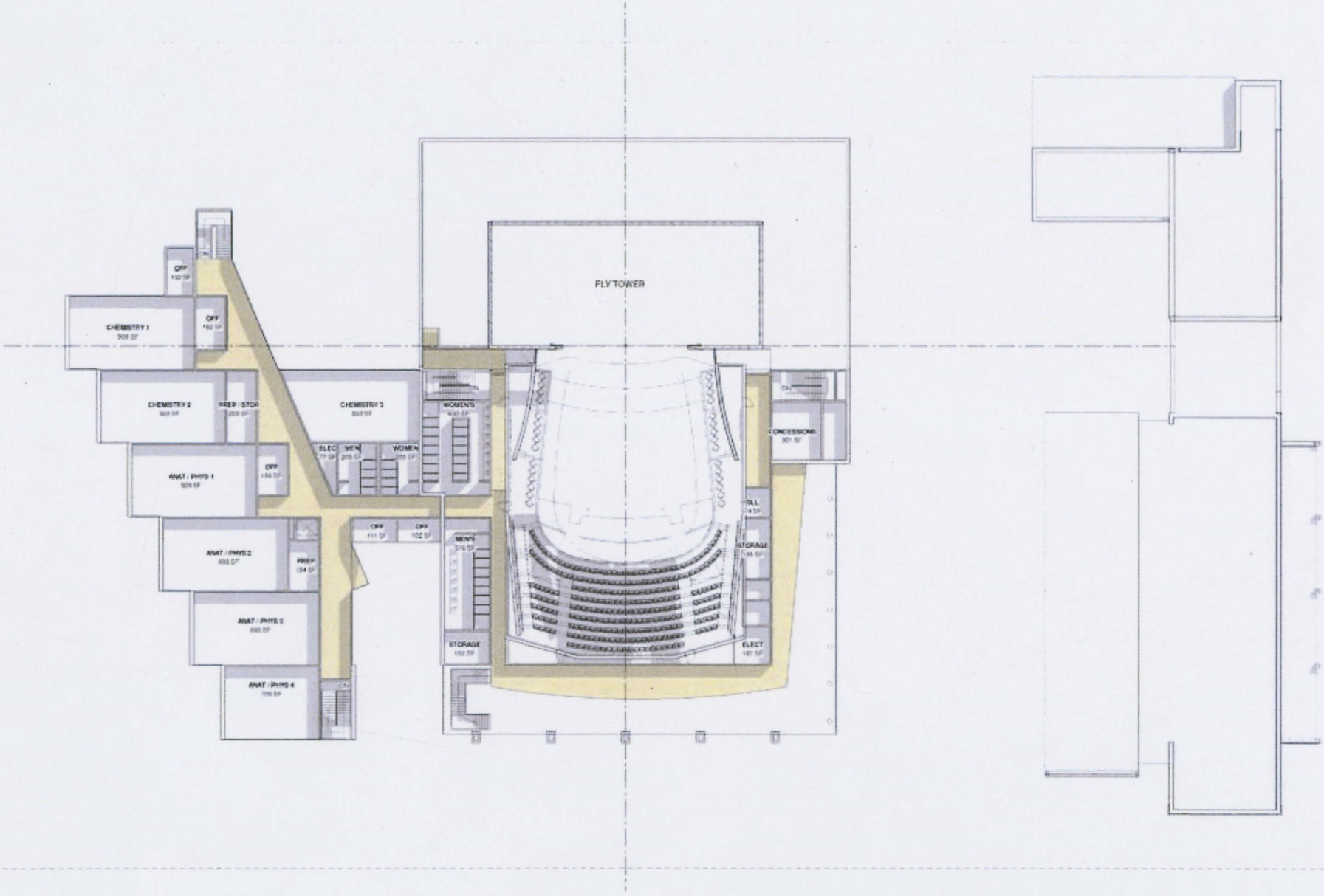
OPTION 2 : FLOOR PLAN - LOWER LEVEL



OPTION 2 : FLOOR PLAN - MAIN LEVEL



OPTION 2 : FLOOR PLAN - UPPER LEVEL



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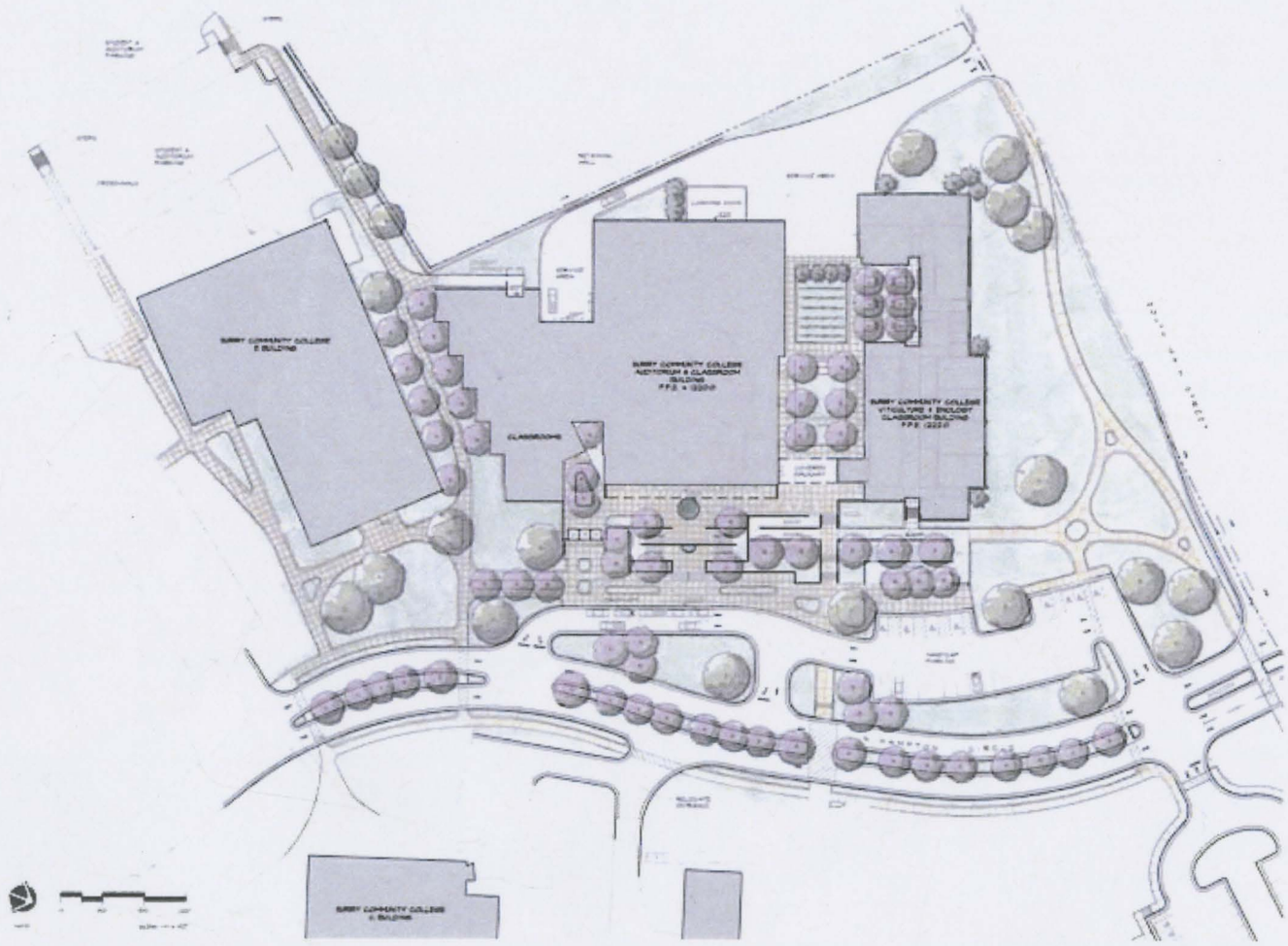
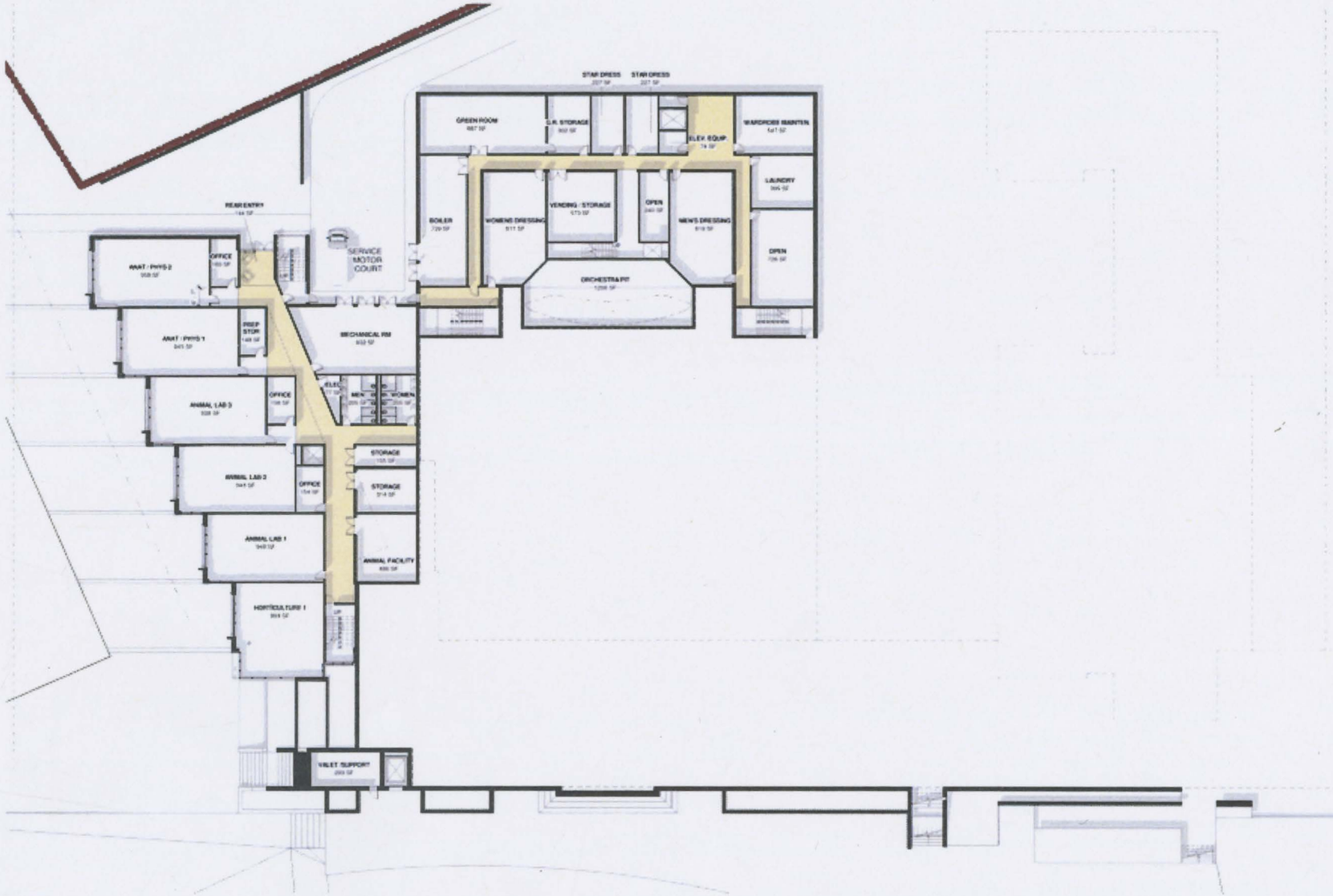


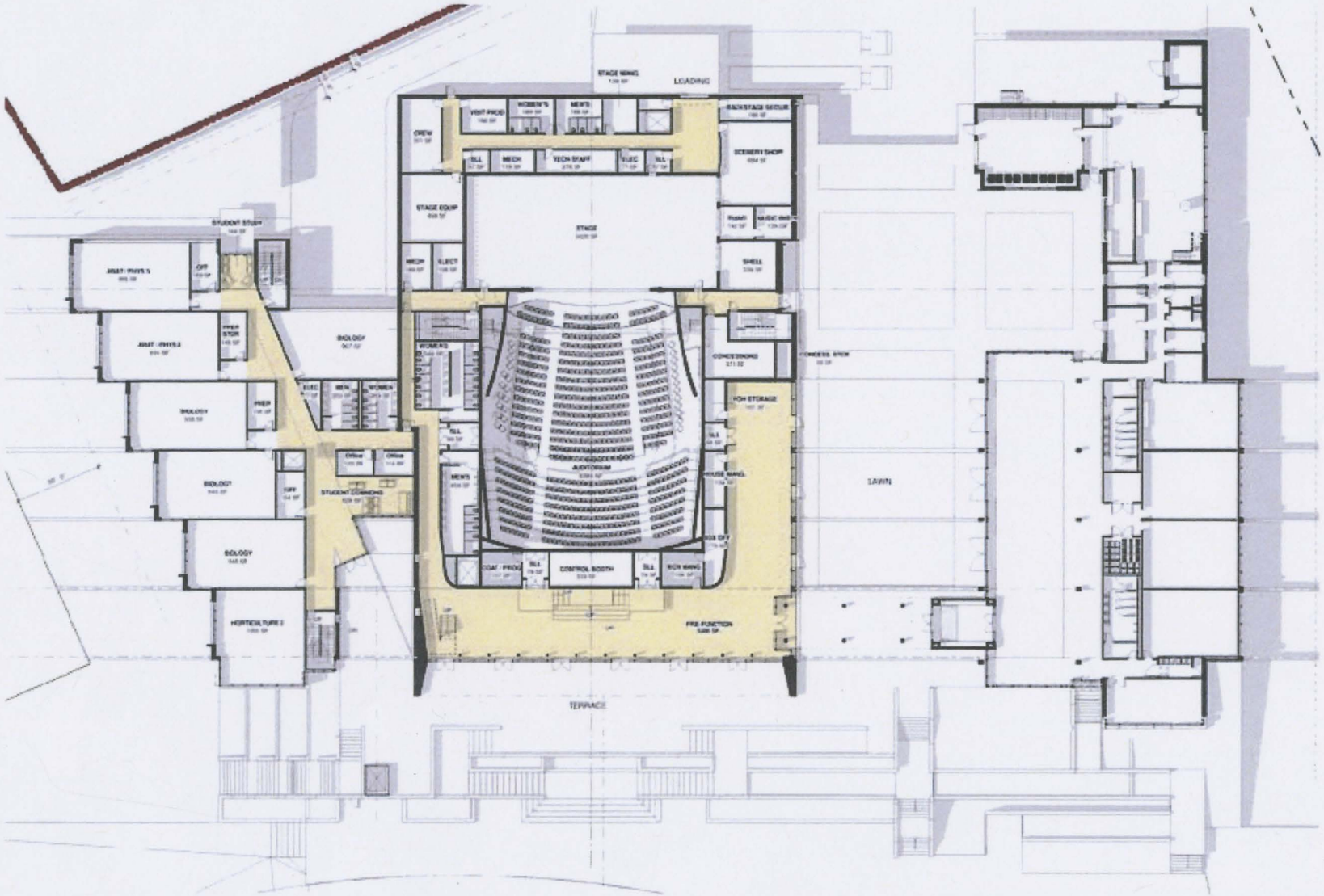
FINAL CONCEPTUAL DESIGN SITE PLAN

Option 2 of the initial design scenarios was selected and further developed as the final conceptual design for the new Sciences & Teaching Auditorium.

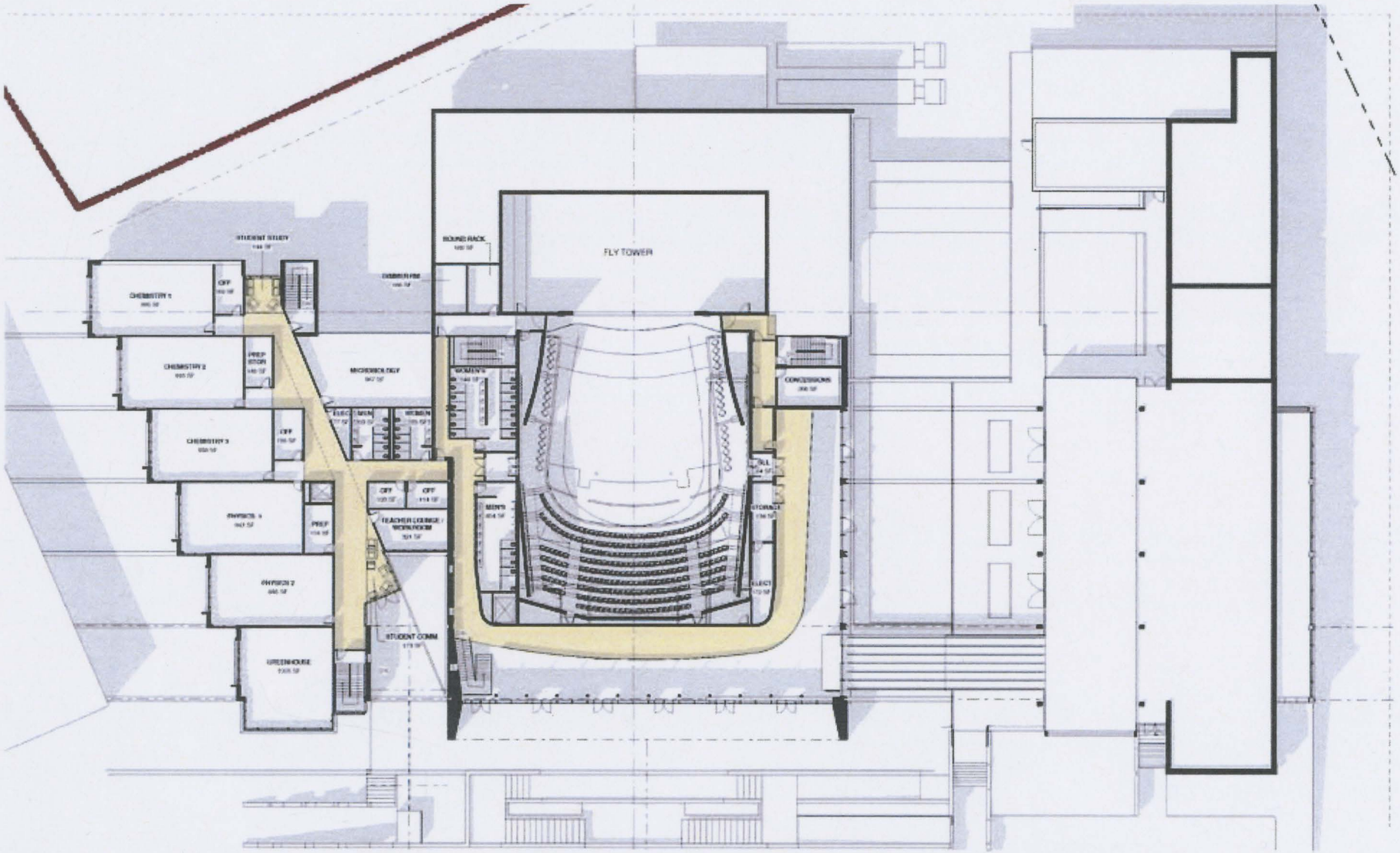
FINAL CONCEPTUAL DESIGN
LOWER LEVEL FLOOR PLAN



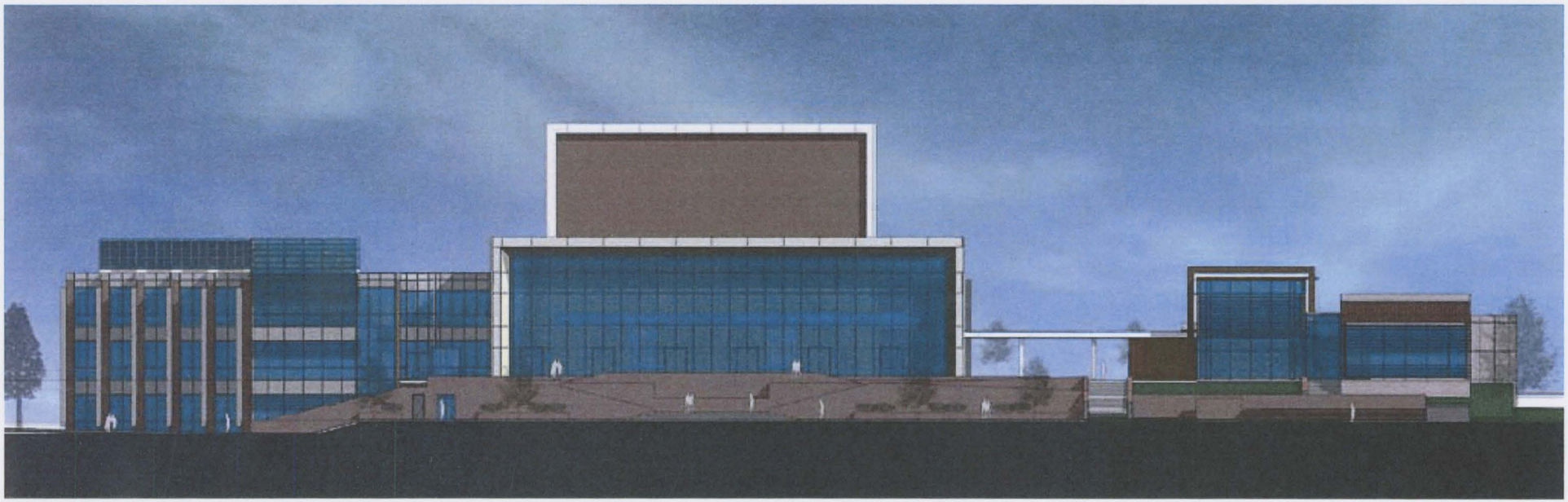
FINAL CONCEPTUAL DESIGN
MAIN LEVEL FLOOR PLAN



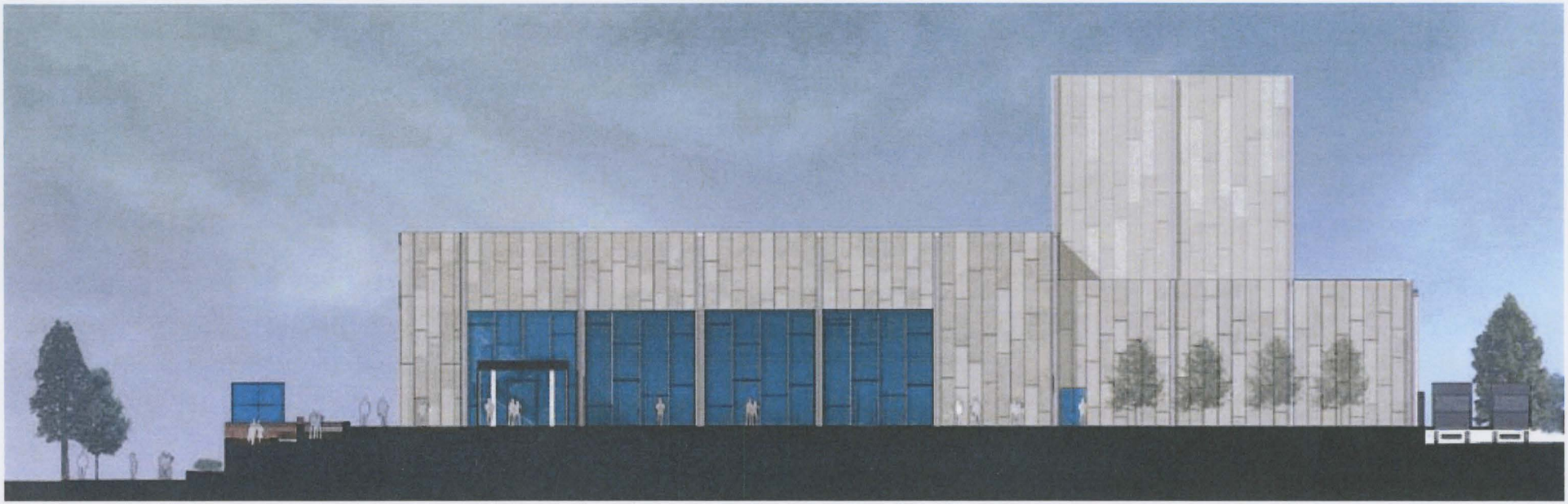
FINAL CONCEPTUAL DESIGN
UPPER LEVEL FLOOR PLAN



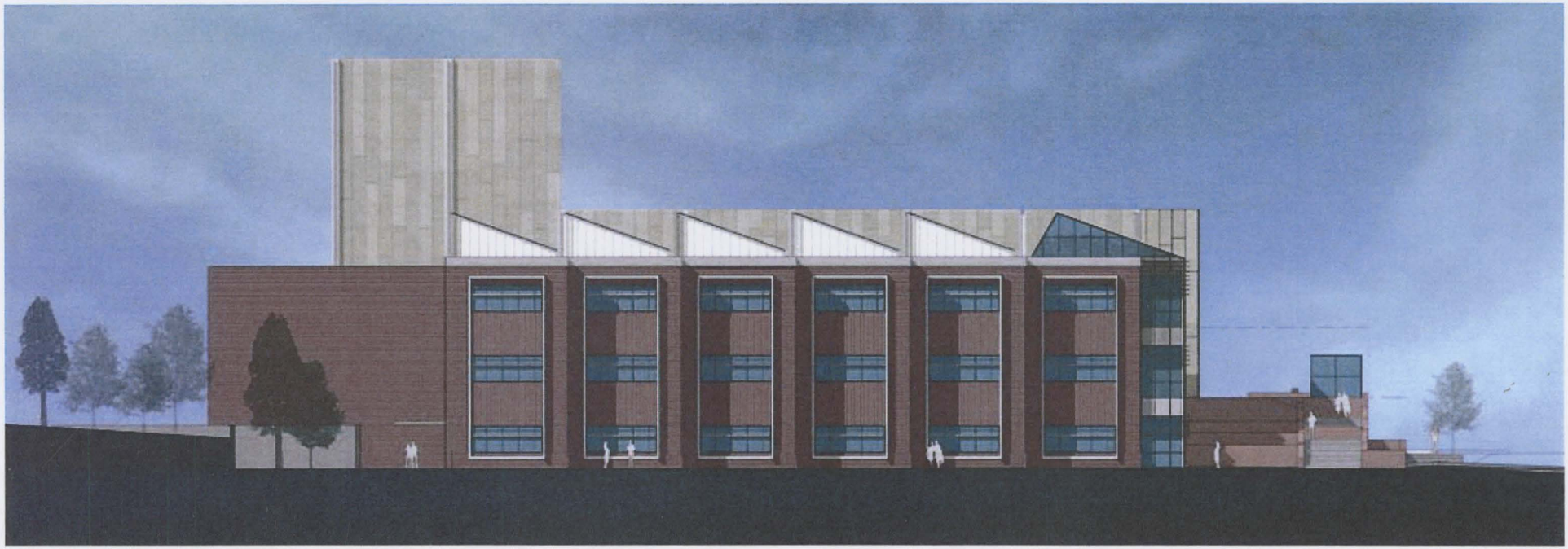
FINAL CONCEPTUAL DESIGN
SOUTH ELEVATION



FINAL CONCEPTUAL DESIGN
EAST ELEVATION



FINAL CONCEPTUAL DESIGN
WEST ELEVATION

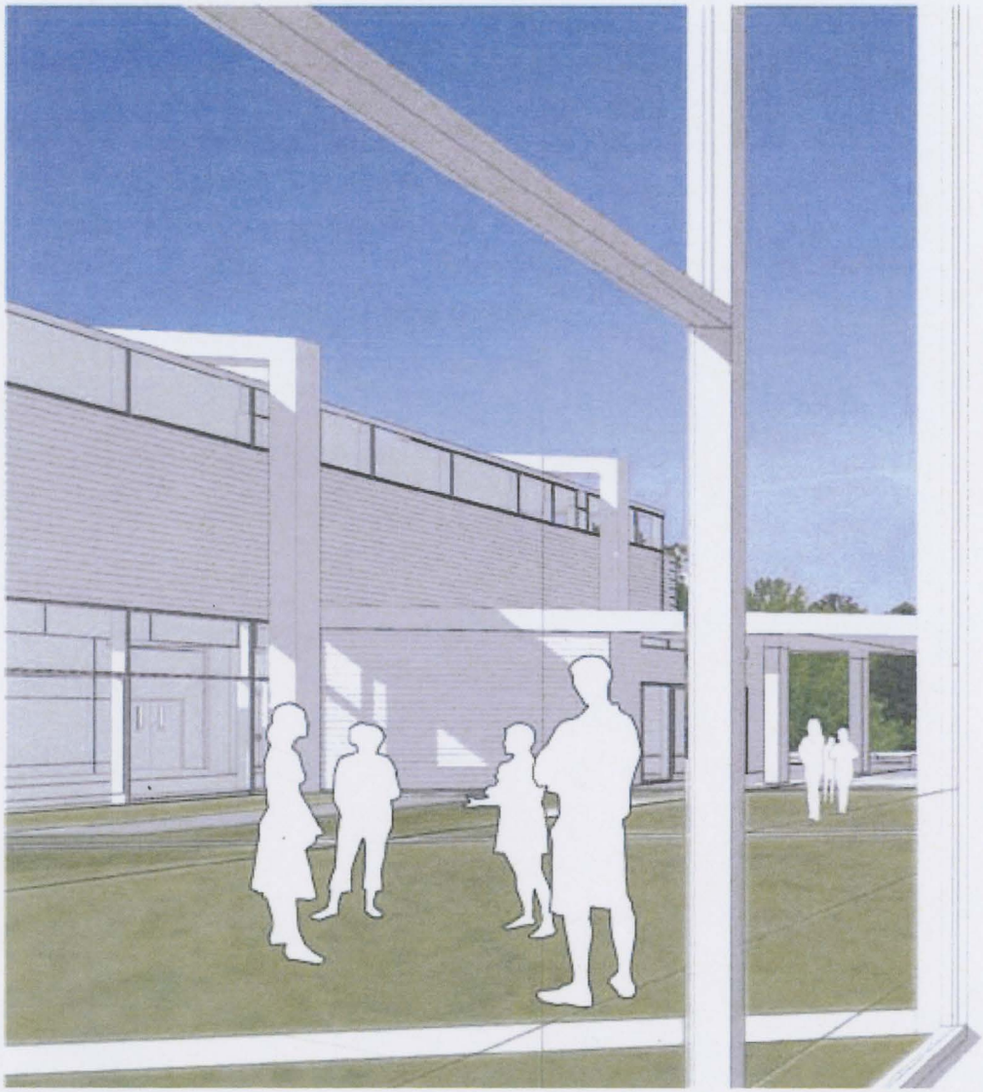


FINAL CONCEPTUAL DESIGN
COURTYARD SECTION

FINAL CONCEPTUAL DESIGN
AUDITORIUM ENTRANCE

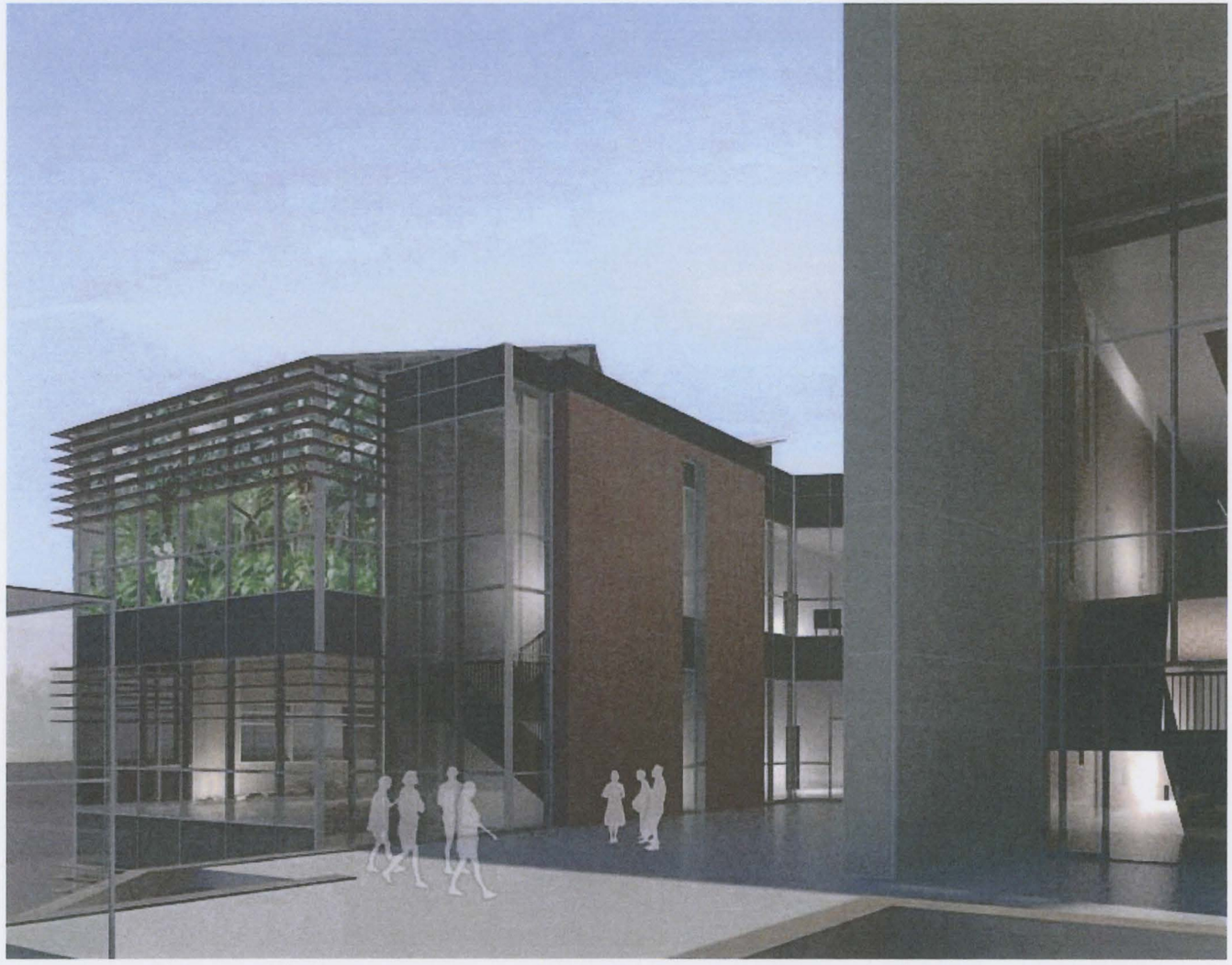
FINAL CONCEPTUAL DESIGN
AUDITORIUM LOBBY

FINAL CONCEPTUAL DESIGN
AUDITORIUM LOBBY



FINAL CONCEPTUAL DESIGN
LAWN VIEW

FINAL CONCEPTUAL DESIGN
COURTYARD VIEW



FINAL CONCEPTUAL DESIGN
SOUTHEAST VIEW

FINAL CONCEPTUAL DESIGN
SOUTHWEST VIEW

08

ARCHITECTURAL NARRATIVE

The Proposed Science and Teaching Auditorium is a new 80,700 SF facility conceived as phase II of Surry Community College's NC center for Viticulture and Enology (NCCVE). The Facility will be located off of the new main entry boulevard to the Campus and just west across a green lawn from Phase I and east of the Electronics Building.

The facility will target the urgent needs of the College with two main programmatic elements: state of the art science classrooms, labs, and offices that address the needs, elevate the presence and consolidate the various science departments; and a flexible 1000-seat auditorium that will serve the diverse needs of the Surry County community, the college, and the NC Center for Viticulture and Enology

The new 3-story state-of-the-art science wing has been designed to provide functional and flexible classrooms/lab spaces, staff offices and support spaces for the Horticulture, Animal Science, Biology, Chemistry, Physics, Microbiology, Anatomy, and Physiology departments. The building is organized along a main circulation spine with the ends serving as entry points. The laboratories are arranged in a repetitive pattern implying order, rhythm, and discipline, common characteristics of the various sciences. The stepping of each bay allows the building to fit in an extremely tight site while enhancing the southern glazing and minimizing western exposure of glass. The 3rd level labs also include north facing skylights to maximize daylight. A glazed greenhouse on the southern edge of the 3rd level showcases the importance of the growing horticulture department at Surry Community College. All the support spaces are inboard against the Auditorium wing. As part of the support spaces, a large mechanical room will support both buildings and will be acoustically isolated from the auditorium wing to minimize vibration transfer.

The new 1000-seat teaching and performance auditorium will support the multiple needs of the college and the community, hence becoming a space where all types of events may occur. Lectures, convocations, performance (music, dance, traveling acts, recitals), and conferences will be able to take place in the new space. A fly tower, electronic equipment, acoustic curtains, lighting and sound equipment will provide the space with the capability to be converted to facilitate any of the aforementioned events. The front part of the Auditorium wing is a 2 story building with a very public

lobby with a glass façade that wraps the corner facing both, the main campus and entry drive, as well as the NCCVE and the green space. The auditorium holds an audience of 666 on the main level, and 334 on the balcony level. The rear of the building contains support space for the theater functions at the main level as well as a basement to support practice space, green rooms and changing rooms for performers and other support spaces for traveling shows.

The building construction will be steel frame with metal studs and brick and precast concrete veneer to match the rest of the existing campus. The design will request limestone as an alternate material to the precast panels on the theater building only. The design provides glazing where it is needed most, classrooms, circulation and public areas, with louvers and screening devices to control direct sun and heat gain where needed. There will also be metal accent panels on the exterior of the science wing.

The roof will be a single ply, high-albedo membrane to reduce heat retention.

DESIGN NARRATIVES

BUILDING GEOMETRY

Design strategies employed for this facility begin with the building's site location and orientation. The tight constrains of the site and the large amount of program to be included encouraged the solution to be compact, vertical (3 stories), and efficient. The building showcases a very public and open presence through its facades to the campus and to the adjacent NCCVE. All the support, service and back-of-house occur to the north and away for the campus. Efficiencies are achieved in the science wing by having identical floor plates on all levels, hence allowing for stacking ability of structural, HVAC, and laboratory systems. The massing of the Auditorium building is simple and straightforward minimizing complexity of form.

Conceptually, both buildings are pieces of a holistic approach that includes the NCCVE as part of 3 components within one site. A 24' regulating structural rhythm that influenced the design and order of the NCCVE expresses itself through the 2 new structures. Rhythm, time, movement, and strict methodologies, common themes to the 3 buildings (agriculture, music and science) are expressed in the design of the building both in plan form and in the massing and skinning of the volumes.

DAYLIGHTING STRATEGIES

Orientations of openings are to the south and north throughout the building unless when necessary due to functional, programmatic or to capture views, hence optimizing daylighting while minimizing solar gain.

Daylighting is addressed as a perimeter condition throughout the proposed design, due in large part to the relatively thin floor plates of the science wing and the perimeter public spaces of the Auditorium wing. The glazing heights will be carefully evaluated and interior light shelves will be incorporated to allow most spaces within the building the opportunity to benefit from exterior daylighting. Louvers and screening devices will also be incorporated to control daylighting and reduce heat gain. The glazing will be carefully selected to balance visible light transmittance with thermal properties to allow light in but keep heat out.

Some of the building's spaces like classrooms lend themselves more readily to daylighting than others. Classroom function was carefully evaluated, for example daylighting may be appropriate for general lectures; however, care should be taken to provide adequate internal shading when the function of the space requires the lighting to be dimmed. Roof Monitors also allow north light to flood the 3rd level laboratories.

Support spaces that require less daylighting and the performance areas were moved towards the interior of the building. Daylighting will be useful for general lighting, but supplemental lighting will be required in most areas.

LEED STRATEGIES

The following is a list of sustainable design strategies that will be considered as the building is further developed. There is potential to obtain LEED Certification:

- Reduce site disturbance & Restore impervious areas
- Reduction of Heat Island Effect – High-albedo site and roofing materials
- Preferred Parking Spots – Fuel Efficient Vehicles
- Light Pollution Reduction – Auto shut-off @ night, Full Cut-off Lights @ Parking Areas
- Commissioning Agent
- Energy Performance (Energy Modeling) – Building Envelope, Correctly Sizing HVAC Equipment, Reduction of Lighting Loads
- Maximize Day-lighting
- Minimize Heat Gain through Sun Louvers
- Reduction In Energy Consumption - High Performance Glass
- Water Use Reduction – Low flow faucets, Dual flush controls, Minimal Irrigation
- Construction Waste Management
- Recycled & Recyclable Materials
- Local / Regional Materials
- CO2 Sensors
- Indoor Air Quality – Low Emitting Materials, Paints, Coatings, Sealers
- Energy Efficient Lighting Fixtures, Lighting Controls
- Energy-Star Appliances
- Green Power - Photovoltaic panels @ Science Roof Monitors
- Enhanced Building Insulation
- Create Internal 'Green' Policies – 'Green Housekeeping procedures, Landscaping

POTENTIAL TO BE ADDED TO DESIGN AT ADDITIONAL COST :

- Rainwater Harvesting – (Storage Tank required)
- Water use Reduction – Landscape irrigation via Rainwater Harvesting

- Water use Reduction – Waterless Urinals
- Energy Efficient Radiant Floor Heating
- Storm Water Management – Grassed Swales , Filtration Basis
- Green Power – Dependent on Contract with Current Power Company
- Renewable Energy – Building-Integrated Photovoltaic Panels (Roofing Membrane)

HVAC

Based on the size and functions of the building, the three air-conditioning systems that will be considered for life-cycle cost analysis are listed below. In each case heat will be provided either by electric coils or by a gas-fired modulating boiler. Because of the stringent acoustical requirements for the performing arts center, DX rooftop units are not considered as a viable option for that component of this facility.

The **first option** is a water-cooled centrifugal chiller and cooling tower. While usually the most efficient option with the longest expected useful life, it is the most expensive and requires the most interior and exterior space devoted to mechanical equipment. In the case of a building this size, it may actually be less efficient than the other options. It is also the most difficult system to maintain. Because the cooling tower is an open system, it loses water to evaporation which must be replaced. In addition, locating chillers inside can be a source of high and low frequency noise and structure borne vibration, which will need to be carefully considered to minimize acoustical impact to the theater space. The **second option** for the mechanical system is an air-cooled chiller located in an exterior courtyard. The chilled water will be distributed throughout the building by means of a constant-flow primary, variable-flow secondary pumping system. This system is less expensive than a water-cooled, centrifugal chiller, which requires more mechanical space inside the building and the same outdoor space for a cooling tower. Because the air-cooled chiller system is a closed system, it requires significantly less makeup water than a cooling tower. Also, by locating the compressorized equipment outdoors on a separate concrete pad, the transmission of vibration to the building will be greatly reduced. While considering this option, we will also evaluate the use of ice storage to reduce peak electrical demand. The chiller would be used to make ice in storage tanks during off-peak nighttime hours and the ice would be melted to meet building cooling demand during peak hours. The chilled water would require the addition of glycol, which reduces the chiller efficiency. However, by operating the chiller during cooler nighttime hours, this loss in efficiency can be offset. An additional benefit to this scenario is that the chiller may not need to operate during performances, reducing the HVAC noise even further. Water-cooled self-contained DX air handlers with a cooling tower located on grade in a mechanical courtyard is the **third option**. An air handler with a built-in water-cooled condenser will serve each zone. Water will be pumped to each condenser and the heat will be rejected by a cooling tower. The air handler will be equipped with a water-side economizer coil that will use condenser water for cooling when outdoor conditions permit. The disadvantages of this type of system are that because it is an open system, it loses water to evaporation at a similar rate as a water cooled chiller and it is more difficult to maintain. Also, DX cooling coils are not able to handle a large percentage of outside air that will be required to provide ventilation to the performing arts center, as well as makeup air to the lab spaces requiring exhaust without the use of some type of total energy recovery or dedicated outside air system. The air handler supply fan will be equipped with a variable frequency drive.

In the first and second options above, a modular variable-air-volume air handler will supply air to each floor. Because all spaces on the classroom side have exterior walls, zones will be served by series-type fan-powered terminals with either electric or hot water heat. Each classroom or laboratory will be a zone and the support spaces on each classroom floor will be zones. In the performing arts center, the theater will be served by a single-zone VAV air handler, with separate control zones for the main level and balcony. The stage will be served by a single-zone VAV air handler, with a separate zone for the orchestra pit. The sizing of these will account for cooling loads associated with theater equipment and lighting. The backstage areas on the lower level and main level will be served by an air handler, with zoning determined by space function and solar orientation. Loads generated by dressing room makeup lights and hair dryers will be taken into account. The front-of-house areas, such as the pre-function space, offices, concessions and restrooms will be served by an air handler, with zoning determined by space function and solar orientation. The control room will have a dedicated air handling system, and if a projector is included, there will be a dedicated exhaust system for the projector. The audio rack room and

dimmer room will be provided with dedicated ductless split-systems to allow for their constant cooling loads. This will maintain conditions in these rooms without requiring the chiller to operate continuously.

In the noise critical spaces, care will be taken to minimize mechanical noise from both airflow and equipment. Supply and return duct will be lined with 2 inch thick, 1.5 pound per cubic foot density fiberglass duct liner with mat facing on the inside surface. Air velocities will be kept low, especially near outlets and inlets. HVAC and plumbing piping will not be routed through noise critical spaces. All mechanical equipment serving the performing arts center will be installed with vibration isolators with flexible connections to piping and duct. Because the program calls for a 1,000 seat performing arts center, a large volume of outside air will be required to meet the ventilation requirements of the space. Chilled water coils are better able to remove moisture from this large volume of outside air than are direct expansion coils. We will evaluate the use of total energy recovery wheels in the air handlers serving the theater to reduce the cooling and heating demand created by conditioning outside air.

All building air systems will be provided with comparative enthalpy economizers to provide free cooling with 100 percent outside air when outdoor ambient enthalpy conditions permit. Powered exhaust will relieve building pressure during economizer operation. For units equipped with energy recovery, a bypass will be included to allow economizer operation without the pressure losses through the energy recovery wheel when outdoor conditions permit.

The options for heating the building are electric heat and heating hot water provided by a gas-fired modulating condensing boiler located in the first floor mechanical room. The boiler could also be used to provide domestic hot water for the building. Electric heat has a lower first cost, and no additional equipment or piping is required, but is less efficient.

A life-cycle cost analysis will be performed on the three HVAC systems above, including options, and electric versus hot water heat to determine the final selection.

General building exhaust will be provided for all toilets controlled by a Building Automation System or timeclock to run during occupied hours. Exhaust for janitor's closets shall be provided and controlled to operate continuously. Because this building will house laboratory space, several of the classroom areas will also require exhaust. The design locates these classrooms on the highest level or adjacent to an exterior wall where the exhaust can be discharged through the roof or through the sidewall. These will be controlled by a wall switch or interlocked with room lights or occupancy sensors. The stage smoke exhaust will be controlled by smoke and heat detection and interlocked with the stage air handler to shutdown the air handler and activate the fans. It will also be equipped with manual controls to allow an operator to activate the system when smoke effects are used in performances.

ELECTRICAL SYSTEMS AND ENERGY CONSERVATION STRATEGIES

The base lighting system for the building will utilize high efficiency, full distribution luminaires such as the Columbia EPC series. Lamp and ballast combinations will be evaluated to make the best choice considering energy, lamp life, user preferences, and cost. Lighting power density should be less than 0.90 watts per square-foot for general lighting not including specialized theatrical lighting.

Step dimming will be applied in offices, classrooms, and other areas where appropriate to allow the user or building automation system to further reduce energy use when full lighting is not required. If applicable, full range dimming may be applied in specialty areas, conference rooms, or where daylighting controls are used. Lighting control for the building common areas and outside lighting will be a distributed relay system with multiple control methods including integral time clock, outside photocell, local switches, and building automation system inputs. Individual relays will be programmable to be controlled by the appropriate control method(s).

Occupancy sensors will be utilized in individual offices, conference rooms, break rooms, storage rooms, rest rooms, corridors, and other similar spaces to reduce lighting energy consumption. In areas with step dimming the sensors allow for two levels of lighting and override by an integral daylight sensor. The settings should be automatic on at low level, manual on high level, automatic off both levels after five minutes of no occupancy. Photocell shuts off lighting at 100 foot-candles of daylight. In areas with a single lighting level these sensors allow for control of a single level of lighting and override by an integral daylight sensor. The settings should be automatic on, automatic off

after five minutes of no occupancy. Photocell shuts off lighting at 50 foot-candles of daylight.

Where daylighting is available as a primary source of lighting, indoor photocells in conjunction with full range dimming will be applied to reduce or eliminate artificial lighting when sufficient natural light is present.

Exterior lighting will be controlled by the lighting control system. All of the exterior lighting will be turned on by outdoor photocell (on at dusk). One-half of the lighting will be turned off by that photocell (off at dawn) and the other half will be turned off by the integral time clock or building automation system after building operating hours (time to be determined by the Owner).

The efficiency of the power system will be improved by utilizing ultra-efficient distribution transformers meeting Department of Energy level CSL-3 in place of standard efficiency transformers meeting TP1-2002. One (or more) transformer(s) will be provided general requirements. One transformer (K-13 or equivalent) with 200% neutral will be provided for Theatrical dimming. One transformer with isolated ground will be furnished for sound, video, and communications systems.

A complete analog addressable fire alarm system will be provided throughout the facility. The building smoke removal system will be interfaced with the fire alarm system.

Power wiring will be provided for all theatrical lighting, sound, video, and communication systems. A conduit system will be provided for sound, video, and communication systems. Special care will be required with conduit systems locations due to the nature of the facility to avoid electrical noise or interference on the sound or communication systems. Theatrical lighting circuit conductors will be oversized to avoid voltage drop. Each circuit will contain an independent neutral. Theatrical lighting outlets will be provided as a part of the electrical contract.

Function of the theater and lobby will require incandescent lighting be provided in some areas, but they will be kept to a minimum. Dimmable fluorescent may also be provided in theater and lobby areas. House lighting will be controlled by the theatrical dimming system. A work light system will be provided in the stage area.

Company switches will be provided for portable lighting and sound systems.

Emergency power for the building will be provided by an engine-generator system and an automatic transfer switch. The generator/ATS will provide backup power to both egress lighting and smoke evacuation systems. An emergency light transfer switch will be used to provide emergency power to dimmer controlled house lighting circuits used for egress lighting.

PLUMBING

Two service water heating options will be evaluated. The first option is for service hot water to be provided by a natural gas water heater equipped with a thermostatic mixing valve and recirculating pump. Water will be heated to 140 degrees F and stored in the tank. The thermostatic mixing valve will mix this with domestic cold water to produce 110 degree water for distribution to the fixtures. The recirculating pump will provide hot water to the lavatories and sinks quickly. All water piping will be insulated to limit thermal losses from the pipe.

The second option is to locate an electric point-of-use water heater at each lavatory group and each sink. This will provide instant hot water at these locations and only heat the water that is used.

09 *Budget Narrative*

09

Estimate No.: 46-09
Schematic Design
Probable Cost Estimate

Auditorium / Science Building
Surry Community College
Dobson, North Carolina

8/26/09
10:23 AM

Harris & Associates, Inc.					Architect: LITTLE							
106 Assembly Drive, Piedmont, SC 29673					Estimator: Roger M. Harris, Jr.							
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Line No.	CSI No.	Item Description	Quantity	U/M	Material Cost Unit	Material Cost Total	Labor Cost Unit	Labor Cost Total	Subcontractor Cost Unit	Subcontractor Cost Total	Total Cost	Unit Cost $ / sf
1												
2												
3		**Building Area**										
4												
5		Lab / Science Building										
6		- ground floor	10,500	SF								
7		- first floor	10,200	SF								
8		- second floor	10,600	SF								
9												
10		**Total Lab / Science Building**	**31,300**	**SF**								
11												
12		Auditorium Building										
13		- ground floor	11,200	SF								
14		- first floor	24,800	SF								
15		- second floor	10,400	SF								
16												
17		**Total Auditorium Building**	**46,400**	**SF**								
18												
19		**Total Project Building Area**	**77,700**	**SF**								
20												
24		**Construction Cost Summary**										
25												
26	02	Site Demolition								42,640	42,640	0.55
27	30	Site Work								757,450	757,450	9.75
28	03	Concrete				512,519		173,876		227,635	914,030	11.76
29	04	Masonry / Precast / Stone				305,881				1,367,531	1,673,412	21.54
30	05	Metals				315,400		65,100		1,729,515	2,110,015	27.16
31	06	Wood & Plastics				15,300		22,500		301,440	339,240	4.37
32	07	Moisture & Thermal Protection								536,710	536,710	6.91
33	08	Doors and Windows				123,000		32,800		1,148,500	1,304,300	16.79
34	09	Finishes								1,176,565	1,176,565	15.14
35	10	Specialties				80,450		14,515		22,700	117,665	1.51
36	11	Equipment								769,800	769,800	9.91
37	12	Furnishings								394,405	394,405	5.08
38	14	Conveying System								175,000	175,000	2.25
39	21	Fire Protection								194,250	194,250	2.50
40	22	Plumbing								1,010,100	1,010,100	13.00
41	23	Mechanical								2,331,000	2,331,000	30.00
42	26	Electrical								2,857,600	2,857,600	36.78
43	01	General Requirements						351,000		620,960	971,960	12.51
44	01	Sales Tax & Labor Burden				87,916		230,927			318,842	4.10
45	01	G.C. Overhead & Fee								719,799	719,799	9.26
46	01	Performance Bonding								374,296	374,296	4.82
47	01	Design / Estimating Contingency								1,908,908	1,908,908	24.57
48												
49		**Total Probable Construction Cost**	**77,700**	**SF**		**1,440,466**		**890,717**		**18,666,804**	**$ 20,997,987**	**270.24**

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50												
51												
52		**Construction Budget**	**77,700**	**SF**							**$ 21,000,000**	**270.27**
53		**Variance**									**$ (2,013)**	**-0.03**
54												
55		**Alternates**										
56	01	Additional Bay @ Science Building	3,000	SF							$ 673,588	
57	02	Glass Enclosed Elevator	1	EA							$ 127,423	
58	03	Lift @ Orchestra Pit	1	EA							$ 245,045	
59	04	Saw tooth Panels @ Roof	3,000	SF							$ 169,344	
60	05	Limestone in lieu of Precast on Ext. Walls	16,000	SF							$ 501,117	
61												
62												
63												
64	02	**Demolition**										
65												
66		Site Demolition - remove										
67		- asphalt paving	49,700	SF					0.6	29,820	29,820	
68		- concrete walks	1,050	SF					0.8	840	840	
69		- seat walls	420	SF					3	1,260	1,260	
70		- curbs	1,350	LF					1.2	1,620	1,620	
71		- handrails	150	LF					2	300	300	
72		- underground utilities										
73		storm drain pipe	230	LF					10	2,300	2,300	
74		storm drain inlets	3	EA					500	1,500	1,500	
75		- misc.	1	LS					5000	5,000	5,000	
76												
77	30	Site Work										
78												
79		Site Preparation										
80		- clearing & grubbing	1	LS							N.I.C.	
81		- mobilization / staking	99	MSF					200	19,800	19,800	
82		- topsoil										
83		remove	1,800	CY					1.5	2,700	2,700	
84		replace	1,800	CY					2	3,600	3,600	
85		- cut / waste	15,300	CY					9	137,700	137,700	
86		- replace unsuitable soils (allowance)	200	CY					15	3,000	3,000	

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87		- silt fence	1,000	LF					3	3,000	3,000	
88		- inlet protection	16	EA					150	2,400	2,400	
89		- construction fence	1,125	LF					8	9,000	9,000	
90		- tree protection fence	300	LF					3	900	900	
91		- temporary grassing	1	AC					1500	1,500	1,500	
92		- temporary sediment trap	1	EA					4000	4,000	4,000	
93		- construction entrance	2	EA					2500	5,000	5,000	
94		- final grading	99	MSF					100	9,900	9,900	
95		Site Utilities										
96		- water distribution / fire line	620	LF					75.00	46,500	46,500	
97		- sanitary sewer	180	LF					40.00	7,200	7,200	
98		- storm drainage										
99		r.c.p.	1,100	LF					45	49,500	49,500	
100		Site Paving										
101		- asphalt paving										
102		heavy duty	3,050	SY					25	76,250	76,250	
103		light duty	7,000	SY					20	140,000	140,000	
104		- concrete										
105		concrete walks / ramps	17,900	SF					3.5	62,650	62,650	
106		concrete paving 6"	1,200	SF					5.5	6,600	6,600	
107		equipment pads	300	SF					6	1,800	1,800	
108		curb / gutter	4,900	LF					15	73,500	73,500	
109		steps	70	CY					300	21,000	21,000	
110		- directional arrows	19	EA					50	950	950	
111		- traffic sign	6	EA					250	1,500	1,500	
112		- wall railings	250	LF					70	17,500	17,500	
113		Landscaping	1	LS					50000	50,000	50,000	
114												
115	03	**Concrete**										
116												
117		Lines & Batters	35,000	SF	0.07	2,450	0.07	2,450	0.14	4,900	9,800	
118		Site Walls										
119		footings										
120		- excavation	600	CY			3	1,800	7	4,200	6,000	
121		- backfill or dispose	600	CY			3	1,800	5	3,000	4,800	
122		- concrete 3,000	200	CY	95	19,000	10	2,000			21,000	
123		- rebar 80#	8	TN	900	7,200			300	2,400	9,600	
124		walls										
125		- form work	13,700	SF	2	27,400	2	27,400			54,800	
126		- rebar	18	TN	900	16,200			300	5,400	21,600	
127		- concrete 3,000	250	CY	95	23,750	10	2,500			26,250	
128		- point & patch	13,700	SF	0.1	1,370	0.4	5,480			6,850	
129		- waterproofing	6,850	SF					3	20,550	20,550	

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Line No.	CSI No.	Item Description	Quantity	U/M	Material Cost Unit	Material Cost Total	Labor Cost Unit	Labor Cost Total	Subcontractor Cost Unit	Subcontractor Cost Total	Total Cost	Unit Cost $ / sf
130		Column Footings										
131		- excavation	840	CY			3	2,520	7	5,880	8,400	
132		- backfill or dispose	840	CY			3	2,520	5	4,200	6,720	
133		- concrete 3,000	280	CY	95	26,600	10	2,800			29,400	
134		- rebar 80#	11	TN	900	9,900			300	3,300	13,200	
135		- set anchor bolts	50	EA	30	1,500	15	750			2,250	
136		- box out columns	50	EA	15	750	10	500			1,250	
137		- grout base plates	50	EA	15	750	10	500			1,250	
138		Wall Footings										
139		- excavation	1,050	CY			3	3,150	7	7,350	10,500	
140		- backfill or dispose	1,050	CY			3	3,150	5	5,250	8,400	
141		- concrete 3,000	350	CY	95	33,250	10	3,500			36,750	
142		- rebar 80#	14	TN	900	12,600			300	4,200	16,800	
143		Walls										134,920
144		- form work	25,000	SF	2	50,000	2	50,000			100,000	
145		- rebar 150#/cy	45	TN	900	40,500			300	13,500	54,000	
146		- concrete 3,000	600	CY	95	57,000	10	6,000			63,000	
147		- point & patch	25,000	SF	0.1	2,500	0.4	10,000			12,500	
148		- waterproofing	12,500	SF					3	37,500	37,500	
149		- waterstop		LF	3		1					
150		- keyform	1,700	LF	2	3,400	1	1,700			5,100	
151		- foundation drain	700	LF	4.5	3,150	1	700			3,850	
152		- stone	130	TN	20	2,600	5	650			3,250	
153		Slab on Grade										
154		- finegrade	35,000	SF			0.1	3,500			3,500	
155		- soil poisoning	35,000	SF					0.1	3,500	3,500	
156		- set screeds	35,000	SF	0.07	2,450	0.07	2,450			4,900	
157		- w.w. mesh	38,500	SF	0.3	11,550	0.08	3,080			14,630	
158		- vapor barrier	38,500	SF	0.1	3,850	0.05	1,925			5,775	
159		- control joint	850	LF	3	2,550	2	1,700			4,250	
160		- edge form	2,270	LF	2	4,540	2	4,540			9,080	
161		- expansion joint	1,900	LF	0.35	665	0.15	285			950	
162		- perimeter insulation	7,600	SF	0.5	3,800	0.15	1,140			4,940	
163		- stone fill	580	TN	20	11,600	5	2,900			14,500	
164		- concrete	470	CY	95	44,650	5	2,350			47,000	
165		- place and finish	35,000	SF					0.65	22,750	22,750	
166		- protect & cure	35,000	SF	0.07	2,450	0.07	2,450			4,900	
167		Suspended Slab										
168		- set screeds	42,700	SF	0.07	2,989	0.07	2,989			5,978	
169		- w.w. mesh	46,970	SF	0.3	14,091	0.08	3,758			17,849	
170		- concrete	595	CY	105	62,475	10	5,950			68,425	
171		- place and finish	42,700	SF					0.65	27,755	27,755	
172		- protect & cure	42,700	SF	0.07	2,989	0.07	2,989			5,978	

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Architect: LITTLE
Estimator: Roger M. Harris, Jr.
Email: rocky@harriscost.com

Line No.	CSI No.	Item Description	Quantity	U/M	Material Cost Unit	Material Cost Total	Labor Cost Unit	Labor Cost Total	Subcontractor Cost Unit	Subcontractor Cost Total	Total Cost	Unit Cost $ / sf
173		Concrete Pump	2,600	CY					20	52,000	52,000	
174												
175	04	**Masonry / Precast / Stone**										
176												
177		Brick Veneer	145	M	350	50,750			1000	145,000	195,750	
178		Stone Cladding	4,250	SF					35	148,750	148,750	
179		C.M.U.										
180		4"	2,400	EA	1.1	2,640			2	4,800	7,440	
181		8"	24,550	EA	1.4	34,370			3	73,650	108,020	
182		12"	25,950	EA	1.7	44,115			3	77,850	121,965	
183		Mortar	3,020	BG	10	30,200					30,200	
184		Sand	302	CY	18	5,436					5,436	
185		Rebar	11	TN	900	9,900			300	3,300	13,200	
186		Horizontal Reinforcing	36,400	LF	0.25	9,100					9,100	
187		Wall Ties	9	M	200	1,800					1,800	
188		Concrete Fill	340	CY	100	34,000			100	34,000	68,000	
189		Rigid Insulation	20,300	SF	1.25	25,375			0.25	5,075	30,450	
190		Damproofing	20,300	SF	0.7	14,210			0.2	4,060	18,270	
191		Scaffolding	40,600	SF	0.2	8,120			0.2	8,120	16,240	
192		Flashing	950	LF	0.7	665			0.2	190	855	
193		Grout Door Frames	164	EA	25	4,100			25	4,100	8,200	
194		Clean Brick / Stone	24,960	SF					0.6	14,976	14,976	
195		Clean Block	20,300	SF					0.1	2,030	2,030	
196		Site Walls	1,450	SF					9	13,050	13,050	
197		- brick	72	M	350	25,200			700	50,400	75,600	
198		- mortar	500	BG	10	5,000					5,000	
199		- sand	50	CY	18	900					900	
200		- clean brick	10,300	SF					0.6	6,180	6,180	
201		Architectural Precast										
202		- bands	425	LF					40	17,000	17,000	
203		- panels w/frames	15,100	SF					50	755,000	755,000	
204												
205	05	**Metals**										
206												
207		Structural Steel	505	TN					3200	1,616,000	1,616,000	
208		Metal Deck										
209		- floor 3"	42,700	SF					1.5	64,050	64,050	
210		- roof 3"	38,050	SF					1.3	49,465	49,465	
211		Miscellaneous Iron										
212		- steel stairs	180	TRD	350	63,000	75	13,500			76,500	
213		- monumental stairs	25	TRD	500	12,500	150	3,750			16,250	
214		- handrails	330	LF	100	33,000	10	3,300			36,300	
215		- wall rails	310	LF	20	6,200	5	1,550			7,750	

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216		- lintels / angles	1,200	LF	15	18,000	5	6,000			24,000	
217		- light rigging	14	TN	2000	28,000	500	7,000			35,000	
218		- pit ladder	2	EA	800	1,600	100	200			1,800	
219		- hoist beam	2	EA	800	1,600	300	600			2,200	
220		- access ladder	2	EA	1500	3,000	200	400			3,400	
221		- catwalks										
222		railings	700	LF	40	28,000	5	3,500			31,500	
223		grating	1,400	SF	35	49,000	10	14,000			63,000	
224		- overhead door frame	1	EA	1500	1,500	100	100			1,600	
225		- grating	1,600	SF	20	32,000	2	3,200			35,200	
226		- bollards	10	EA	600	6,000	100	1,000			7,000	
227		- balcony rails	200	LF	85	17,000	10	2,000			19,000	
228		- misc.	1	LS	15000	15,000	5000	5,000			20,000	
229												
230	06	**Wood & Plastics**										
231												
232		Rough Carpentry										
233		- trtd. nailers	5,000	BF	0.7	3,500	1.5	7,500			11,000	
234		- blocking / nailers	8,000	BF	0.6	4,800	1.5	12,000			16,800	
235		- 1/2" plywood roof sheathing	300	SHT	20	6,000	10	3,000			9,000	
236		- rough hardware	1	LS	1000	1,000					1,000	
237		Millwork										
238		- wood panels	3,670	SF					12	44,040	44,040	
239		- wood flooring	3,400	SF					12	40,800	40,800	
240		- wood base	400	LF					4	1,600	1,600	
241		- misc.	1	LS					5000	5,000	5,000	
242		Casework										
243		- base cabinet	200	LF					400	80,000	80,000	
244		- wall cabinet	200	LF					250	50,000	50,000	
245		- vanities / counters	400	LF					200	80,000	80,000	
246												
247												
248												
249												
250	07	**Moisture & Thermal Protection**										
251												
252		Roofing										
253		- membrane roofing w / insulation	370	SQ					600	222,000	222,000	
254		- flashing	370	SQ					50	18,500	18,500	
255		- canopy	1,000	SF					25	25,000	25,000	
256		- roof hatch	3	EA					3000	9,000	9,000	
257		Metal Wall Panels	730	SF					40	29,200	29,200	
258		Exterior Metal Soffit	1,200	SF					5	6,000	6,000	

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259		Building Insulation										
260		- wall batt 6" tk.	17,400	SF					0.85	14,790	14,790	
261		- sound batt 4" tk.	63,900	SF					0.85	54,315	54,315	
262		Sprayed Fireproofing	133,500	SF					0.95	126,825	126,825	
263		Caulking / Fire Safe	77,700	SF					0.4	31,080	31,080	
264												
265	08	Doors and Windows										
266												
267		Doors										
268		- h.m. door	13	EA	250	3,250	50	650			3,900	
269		- s.c. door	151	EA	250	37,750	50	7,550			45,300	
270		- h.m. door frame	164	EA	50	8,200	50	8,200			16,400	
271		- finish hardware	164	EA	450	73,800	100	16,400			90,200	
272		Overhd. Door	2	EA					8000	16,000	16,000	
273		Glass & Glazing										
274		- glass doors	23	EA					2500	57,500	57,500	
275		- automatic door operators	6	EA					6000	36,000	36,000	
276		- curtain wall	13,400	SF					60	804,000	804,000	
277		- alum. storefront / windows	1,500	SF					40	60,000	60,000	
278		- interior glazing	500	SF					30	15,000	15,000	
279		- greenhouse glazing	3,200	SF					50	160,000	160,000	
280												
281	09	Finishes										
282												
283		Flooring										
284		- terrazzo	9,250	SF					12	111,000	111,000	
285		- carpet	2,130	SY					32	68,160	68,160	
286		- ceramic tile	4,150	SF					9	37,350	37,350	
287		- polished concrete	23,600	SF					2.5	59,000	59,000	
288		- sealer	15,400	SF					0.2	3,080	3,080	
289		- rubber treads	180	EA					40	7,200	7,200	
290		- terrazzo treads	5	EA					250	1,250	1,250	
291		Base										
292		- rubber	11,130	LF					1.5	16,695	16,695	
293		- ceramic tile	970	SF					5	4,850	4,850	
294		Walls										
295		- metal studs										
296		6"	17,900	SF					3.5	62,650	62,650	
297		4"	67,300	SF					2.5	168,250	168,250	
298		1 5/8"	8,250	SF					1.5	12,375	12,375	
299		- gypsum sheathing	17,900	SF					1.5	26,850	26,850	
300		- gypsum wall board	155,200	SF					1.1	170,720	170,720	
301		- shaft wall	3,750	SF					3.5	13,125	13,125	

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Auditorium / Science Building
Surry Community College
Dobson, North Carolina

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Line No.	CSI No.	Item Description	Quantity	U/M	Material Cost Unit	Material Cost Total	Labor Cost Unit	Labor Cost Total	Subcontractor Cost Unit	Subcontractor Cost Total	Total Cost	Unit Cost $ / sf
302		- ceramic wall tile	4,850	SF					9	43,650	43,650	
303		- acoustical panels	1,600	SF					15	24,000	24,000	
304		Ceilings										
305		- plaster soffit	4,800	SF					10	48,000	48,000	
306		- gypsum board	6,000	SF					3.5	21,000	21,000	
307		- acoustical wrapped panels	1,600	SF					20	32,000	32,000	
308		- acoustical	63,000	SF					2.2	138,600	138,600	
309		Paint										
310		- doors frames	164	EA					20	3,280	3,280	
311		- doors	13	EA					40	520	520	
312		- walls	124,500	SF					0.65	80,925	80,925	
313		- gypsum ceilings	6,000	SF					0.75	4,500	4,500	
314		- railings	640	SF					4	2,560	2,560	
315		- exposed ceilings	10,500	SF					0.95	9,975	9,975	
316		- misc.	1	LS					5000	5,000	5,000	
317												
318	10	Specialties										
319												
320		Toilet Accessories / Partitions										
321		- toilet partitions (phenolic)	74	EA	650	48,100	100	7,400			55,500	
322		- urinal screen	10	EA	150	1,500	50	500			2,000	
323		- toilet tissue dispensers	74	EA	70	5,180	15	1,110			6,290	
324		- grab bars	28	EA	50	1,400	20	560			1,960	
325		- mirrors	1,500	SF	5	7,500	1.5	2,250			9,750	
326		- paper towel dispenser / w.r.	12	EA	300	3,600	20	240			3,840	
327		- soap dispenser	42	EA	60	2,520	15	630			3,150	
328		- sanitary napkin vendor	4	EA	300	1,200	50	200			1,400	
329		- sanitary napkin disposal	46	EA	50	2,300	15	690			2,990	
330		- mop holder / shelf	3	EA	50	150	15	45			195	
331		Door Signage	1	LS					15000	15,000	15,000	
332		Fire Ext. & Cabinet	10	EA	100	1,000	25	250			1,250	
333		Visual Display										
334		- marker boards	16	EA	250	4,000	25	400			4,400	
335		- tack boards	16	EA	100	1,600	10	160			1,760	
336		- map rails	16	EA	25	400	5	80			480	
337		Column Covers	11	EA					700	7,700	7,700	
338												
339	11	Equipment										
340												
341		Lab Casework	13	RM					50000	650,000	650,000	
342		Laundry Equipment	1	LS					2500	2,500	2,500	
343		Stage Curtain / Accessories	50	LF					1000	50,000	50,000	
344		Dock Bumpers	2	EA					150	300	300	

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345		Projection Screen - manual	16	EA					1000	16,000	16,000	
346		Residential Appliances	1	LS					5000	5,000	5,000	
347		Concession Equipment	1	LS							F.B.O.	
348		Projection Screen - manual	23	EA					2000	46,000	46,000	
349												
350	12	**Furnishings**										
351												
352		Auditorium Seating	995	EA					375	373,125	373,125	
353		Drapes	425	LF					20	8,500	8,500	
354		Window Treatment	1,240	SF					3.25	4,030	4,030	
355		Foot Grilles	125	SF					70	8,750	8,750	
356												
357	14	**Conveying System**										
358												
357		Elevators										
358		- 2 - stop	2	EA					55000	110,000	110,000	
359		- 3 - stop	1	EA					65000	65,000	65,000	
358												
359	21	**Fire Protection**	77,700	SF					2.50	194,250	194,250	
360												
359	22	**Plumbing**	77,700	SF					13.00	1,010,100	1,010,100	
360												
361	23	**Mechanical**	77,700	SF					30.00	2,331,000	2,331,000	
360												
361	26	**Electrical**										
362		- lab / science	31,300	SF					32.00	1,001,600	1,001,600	
361		- auditorium	46,400	SF					40.00	1,856,000	1,856,000	
362												
363												
362	01	**General Requirements**										
363												
364		Project Manager	39	WK			2200	85,800			85,800	
363		Superintendent	78	WK			2000	156,000			156,000	
364		Timekeeper / Clerk	78	WK			600	46,800			46,800	
365		Pickup Truck	18	MO					1000	18,000	18,000	
364		Office Expenses	18	MO					1000	18,000	18,000	
365		Project Sign	1	EA					1500	1,500	1,500	
366		Permits	1	LS					15000	15,000	15,000	
365		Field Engineering	1	LS					25000	25,000	25,000	
366		Temporary Facilities										
367		- office trailer	18	MO					500	9,000	9,000	
366		- storage trailer	18	MO					200	3,600	3,600	
367		- power / lighting / water	18	MO					500	9,000	9,000	

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368		- toilets	18	MO					400	7,200	7,200	
367		- telephone	18	MO					300	5,400	5,400	
368		- safety supplies	18	MO					100	1,800	1,800	
369		- consumable supplies	18	MO					100	1,800	1,800	
368		- dumpster rental / dump fees	18	MO					500	9,000	9,000	
369		- construction fence	800	LF					5	4,000	4,000	
370		Small Tools	18	MO					6000	108,000	108,000	
369		Equipment Rental	18	MO					20000	360,000	360,000	
370		Progressive Cleaning	6,240	MH			10	62,400			62,400	
371		Final Cleaning	82,200	SF					0.3	24,660	24,660	
370												
371		Subtotal				1,352,550		659,791		15,663,801	17,676,142	
372		Sales Tax	6.50%			87,916					87,916	
371		Labor Burden	35%					230,927			230,927	
372		Subtotal									17,994,984	
373		G.C. Overhead & Fee	4%							719,799	719,799	
372		Subtotal									18,714,783	
373		Performance Bonding	2%							374,296	374,296	
374		Subtotal									19,089,079	
373		Design / Estimating Contingency	10%							1,908,908	1,908,908	
374												
375		Total Probable Construction Cost	77,700	SF		1,440,466		890,717		18,666,804	$ 20,997,987	270.24

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Alternates

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Line No.	CSI No.	Item Description	Quantity	U/M	Material Cost Unit	Material Cost Total	Labor Cost Unit	Labor Cost Total	Subcontractor Cost Unit	Subcontractor Cost Total	Total Cost	Unit Cost $ / sf
1												
2												
3												
4		**Project Alternates**										
5												
6	01	Additional Bay @ Science Building	3,000	SF		16,815		4,949		651,823	673,588	
7												
8	02	Glass Enclosed Elevator	1	EA						127,423	127,423	
9												
10	03	Lift @ Orchestra Pit	1	EA						245,045	245,045	
11												
12	04	Saw tooth Panels @ Roof	3,000	SF		320		270		168,754	169,344	
13												
14	05	Limestone in lieu of Precast on Ext. Walls	16,000	SF						501,117	501,117	
15												
16		**Total Probable Alternates Cost**				**17,135**		**5,219**		**1,694,162**	**$ 1,716,516**	
17												
18												
19	01	**Additional Bay @ Science Building**	3,000	SF								
20												
21	03	**Concrete**										
22												
23		Lines & Batters	1,000	SF	0.07	70	0.07	70	0.14	140	280	
24		Footings										
25		- excavation	60	CY			3	180	7	420	600	
26		- backfill or dispose	60	CY			3	180	5	300	480	
27		- concrete 3,000	20	CY	95	1,900	10	200			2,100	
28		- rebar 80#	1	TN	900	900			300	300	1,200	
29		Slab on Grade										
30		- finegrade	1,000	SF			0.1	100			100	
31		- soil poisoning	1,000	SF					0.1	100	100	
32		- set screeds	1,000	SF	0.07	70	0.07	70			140	
33		- w.w. mesh	1,100	SF	0.3	330	0.08	88			418	
34		- vapor barrier	1,100	SF	0.1	110	0.05	55			165	
35		- control joint	50	LF	3	150	2	100			250	
36		- edge form		LF	2		2					
37		- expansion joint	140	LF	0.35	49	0.15	21			70	
38		- perimeter insulation	560	SF	0.5	280	0.15	84			364	
39		- stone fill	16	TN	20	320	5	80			400	
40		- concrete	12	CY	95	1,140	5	60			1,200	
41		- place and finish	1,000	SF					0.65	650	650	
42		- protect & cure	1,000	SF	0.07	70	0.07	70			140	
43		Suspended Slab										

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44		- set screeds	2,000	SF	0.07	140	0.07	140			280	
45		- w.w. mesh	2,100	SF	0.3	630	0.08	168			798	
46		- concrete	26	CY	105	2,730	10	260			2,990	
47		- place and finish	2,000	SF					0.65	1,300	1,300	
48		- protect & cure	2,000	SF	0.07	140	0.07	140			280	
49		Concrete Pump	38	CY					20	760	760	
50												
51	04	Masonry / Precast										
52												
53		Brick Veneer	7	M	350	2,450			1000	7,000	9,450	
54		Mortar	50	BG	10	500					500	
55		Sand	5	CY	18	90					90	
56		Wall Ties	1	M	200	200					200	
57		Scaffolding	1,050	SF	0.2	210			0.2	210	420	
58		Clean Brick	1,050	SF					0.6	630	630	
59												
60	05	Metals										
61												
62		Structural Steel	14	TN					3200	44,800	44,800	
63		Metal Deck										
64		- floor 3"	2,000	SF					1.5	3,000	3,000	
65		- roof 3"	1,000	SF					1.3	1,300	1,300	
66		Miscellaneous Iron	1	LS	600	600	400	400			1,000	
67		- misc.										
68												
69	06	Wood & Plastics										
70												
71		Rough Carpentry										
72		- trtd. nailers	200	BF	0.7	140	1.5	300			440	
73		- blocking / nailers	200	BF	0.6	120	1.5	300			420	
74		- rough hardware	1	LS	200	200					200	
75		Millwork	1	LS					5000	5,000	5,000	
76		Casework	50	LF					400	20,000	20,000	
77												
78	07	Moisture & Thermal Protection										
79												
80		Roofing										
81		- membrane roofing w / insulation	10	SQ					600	6,000	6,000	
82		- flashing	10	SQ					50	500	500	
83		Metal Wall Panels	100	SF					40	4,000	4,000	
84		Building Insulation										
85		- wall batt 6" tk.	1,050	SF					0.85	893	893	
86		- sound batt 4" tk.	8,200	SF					0.85	6,970	6,970	

Harris & Associates, Inc.
106 Assembly Drive, Piedmont, SC 29673
Telephone: (864) 269-2445 Fax: (864) 269-2944

Architect: LITTLE
Estimator: Roger M. Harris, Jr.
Email: rocky@harriscost.com

Line No.	CSI No.	Item Description	Quantity	U/M	Material Cost Unit	Material Cost Total	Labor Cost Unit	Labor Cost Total	Subcontractor Cost Unit	Subcontractor Cost Total	Total Cost	Unit Cost $ / sf
87		Sprayed Fireproofing	3,000	SF					0.95	2,850	2,850	
88		Caulking / Fire Safe	3,000	SF					0.4	1,200	1,200	
89												
90	08	**Doors and Windows**										
91												
92		Doors										
93		- s.c. door	3	EA	250	750	50	150			900	
94		- h.m. door frame	3	EA	50	150	50	150			300	
95		- finish hardware	3	EA	450	1,350	100	300			1,650	
96		Glass & Glazing										
97		- alum. storefront / windows	570	SF					40	22,800	22,800	
98												
99	09	**Finishes**										
100												
101		Flooring										
102		- polished concrete	3,000	SF					2.5	7,500	7,500	
103		Base										
104		- rubber	5,900	LF					1.5	8,850	8,850	
105		Walls										
106		- metal studs										
107		6"	1,050	SF					3.5	3,675	3,675	
108		4"	4,100	SF					2.5	10,250	10,250	
109		- gypsum sheathing	1,050	SF					1.5	1,575	1,575	
110		- gypsum wall board	8,200	SF					1.1	9,020	9,020	
111		Ceilings										
112		- acoustical	3,000	SF					2.2	6,600	6,600	
113		Paint										
114		- doors frames	3	EA					20	60	60	
115		- walls	59,000	SF					0.65	38,350	38,350	
116		- misc.	1	LS					5000	5,000	5,000	
117												
118	21	**Fire Protection**	3,000	SF					3.00	9,000	9,000	
119												
120	22	**Plumbing**	3,000	SF					14.00	42,000	42,000	
121												
122	23	**Mechanical**	3,000	SF					45.00	135,000	135,000	
123												
124	26	**Electrical**	3,000	SF					40.00	120,000	120,000	
125												
126		Subtotal				15,789		3,666		528,003	547,458	
127		Sales Tax	6.50%			1,026					1,026	
128		Labor Burden	35%					1,283			1,283	
129		Subtotal									549,767	

Estimate No.: 46-09
Schematic Design
Probable Cost Estimate

Auditorium / Science Building
Surry Community College
Dobson, North Carolina

8/26/09
10:23 AM

Alternates

Harris & Associates, Inc.													Architect: LITTLE	
106 Assembly Drive, Piedmont, SC 29673													Estimator: Roger M. Harris, Jr.	
Telephone: (864) 269-2445 Fax: (864) 269-2944													Email: rocky@harriscost.com	
Line No.	CSI No.	Item Description	Quantity	U/M	Material Cost Unit	Material Cost Total	Labor Cost Unit	Labor Cost Total	Subcontractor Cost Unit	Subcontractor Cost Total	Total Cost		Unit Cost $ / sf
130		General Requirements	5%							27,488	27,488		
131		Subtotal									577,255		
132		G.C. Overhead & Fee	4%							23,090	23,090		
133		Subtotal									600,345		
134		Performance Bonding	2%							12,007	12,007		
135		Subtotal									612,352		
136		Design / Estimating Contingency	10%							61,235	61,235		
137													
138		**Total Probable Alternate No. 1 Cost**	3,000	SF		16,815		4,949		651,823	$ 673,588		224.53
139													
140													
141	02	**Glass Enclosed Elevator**	1	EA									
142													
143	14	**Conveying System**											
144													
145		Elevators - hydraulic	1	EA					55000	55,000	55,000		
146		Glass Enclosure	700	SF					70	49,000	49,000		
147													
148		Subtotal								104,000	104,000		
149		Sales Tax	6.50%										
150		Labor Burden	35%										
151		Subtotal									104,000		
152		General Requirements	5%							5,200	5,200		
153		Subtotal									109,200		
154		G.C. Overhead & Fee	4%							4,368	4,368		
155		Subtotal									113,568		
156		Performance Bonding	2%							2,271	2,271		
157		Subtotal									115,839		
158		Design / Estimating Contingency	10%							11,584	11,584		
159													
160		**Total Probable Alternate No. 2 Cost**								127,423	$ 127,423		
161													
162													
163	03	**Orchestra Pit Lift**	1	EA									
164													
165	11	**Equipment**											
166													
167		Lift / Platform	1	EA					200000	200,000	200,000		
168													
169		Subtotal								200,000	200,000		
170		Sales Tax	6.50%										
171		Labor Burden	35%										
172		Subtotal									200,000		

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Line No.	CSI No.	Item Description	Quantity	U/M	Material Cost Unit	Material Cost Total	Labor Cost Unit	Labor Cost Total	Subcontractor Cost Unit	Subcontractor Cost Total	Total Cost	Unit Cost $ / sf
173		General Requirements	5%							10,000	10,000	
174		Subtotal									210,000	
175		G.C. Overhead & Fee	4%							8,400	8,400	
176		Subtotal									218,400	
177		Performance Bonding	2%							4,368	4,368	
178		Subtotal									222,768	
179		Design / Estimating Contingency	10%							22,277	22,277	
180												
181		**Total Probable Alternate No. 3 Cost**								**245,045**	**$ 245,045**	
182												
183												
184												
185												
186												
187												
188	04	**Saw tooth @ Roof**	**3,000**	**SF**								
189												
190	05	**Metals**										
191												
192		Structural Steel	(15.0)	TN					3200	(48,000)	(48,000)	
193		Metal Deck										
194		- roof 3"	(3,000)	SF					1.3	(3,900)	(3,900)	
195		Miscellaneous Iron	1	LS	300	300	200	200			500	
196		- misc.										
197												
198	07	**Moisture & Thermal Protection**										
199												
200		Roofing										
201		- membrane roofing w / insulation	(30)	SQ					600	(18,000)	(18,000)	
202		- flashing	(30)	SQ					50	(1,500)	(1,500)	
203		Metal Wall Panels (zinc)	3,000	SF					40	120,000	120,000	
204		PV Panels	1,200	SF					10	12,000	12,000	
205		Caulking / Fire Safe	3,000	SF					0.4	1,200	1,200	
206												
207	08	**Doors and Windows**										
208												
209		Clerestory	1,050	SF					50	52,500	52,500	
210												
211	09	**Finishes**										
212												
213		Walls										
214		- metal studs										
215		6"	3,000	SF					3.5	10,500	10,500	

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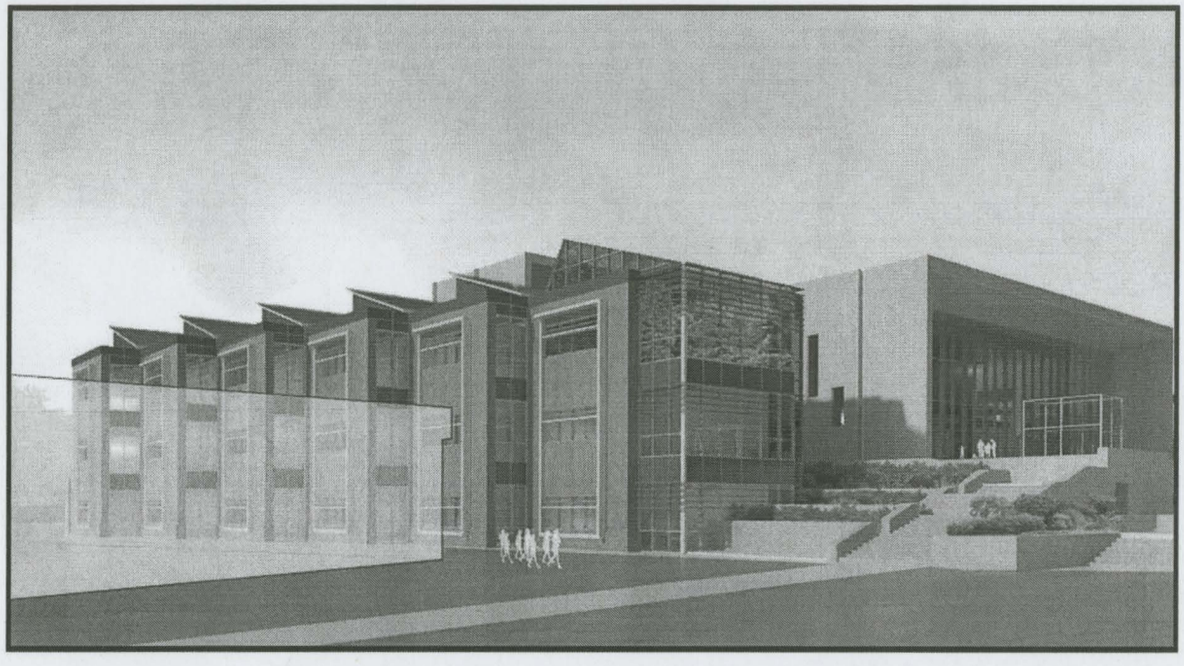
Line No.	CSI No.	Item Description	Quantity	U/M	Material Cost Unit	Material Cost Total	Labor Cost Unit	Labor Cost Total	Subcontractor Cost Unit	Subcontractor Cost Total	Total Cost	Unit Cost $ / sf
216		- wall batt 6" tk.	3,000	SF					0.85	2,550	2,550	
217		- gypsum sheathing	3,000	SF					1.5	4,500	4,500	
218		- gypsum wall board	3,000	SF					1.1	3,300	3,300	
219		Ceilings										
220		- acoustical	1,125	SF					2.2	2,475	2,475	
221												
222		Subtotal				300		200		137,625	138,125	
223		Sales Tax	6.50%			20					20	
224		Labor Burden	35%					70			70	
225		Subtotal									138,215	
226		General Requirements	5%							6,911	6,911	
227		Subtotal									145,125	
228		G.C. Overhead & Fee	4%							5,805	5,805	
229		Subtotal									150,930	
230		Performance Bonding	2%							3,019	3,019	
231		Subtotal									153,949	
232		Design / Estimating Contingency	10%							15,395	15,395	
233												
234		**Total Probable Alternate No. 4 Cost**				**320**		**270**		**168,754**	**$ 169,344**	
235												
236												
237	**05**	**Limestone in lieu of Precast on Ext. Walls**	**16,000**	**SF**								
238												
239	**04**	**Masonry / Stone / Precast**										
240												
241		Limestone										
242		- bands	450	LF					60	27,000	27,000	
243		- panels w/frames	16,000	SF					75	1,200,000	1,200,000	
244		Architectural Precast										
245		- bands	(450)	LF					40	(18,000)	(18,000)	
246		- panels w/frames	(16,000)	SF					50	(800,000)	(800,000)	
247												
248		Subtotal								409,000	409,000	
249		Sales Tax	6.50%									
250		Labor Burden	35%									
251		Subtotal									409,000	
252		General Requirements	5%							20,450	20,450	
253		Subtotal									429,450	
254		G.C. Overhead & Fee	4%							17,178	17,178	
255		Subtotal									446,628	
256		Performance Bonding	2%							8,933	8,933	
257		Subtotal									455,561	
258		Design / Estimating Contingency	10%							45,556	45,556	
259												
260		**Total Probable Alternate No. 5 Cost**								**501,117**	**$ 501,117**	

Visioning for the Future



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Environmental Scan
Surry Community College

Office of Planning, Research, and Assessment

Visioning for the Future

Environmental Scan - Surry Community College

TABLE OF CONTENTS

SURRY Community College™

Produced by:
Surry Community College
Office of Planning, Research, and Assessment

Prepared by:
Dr. Anne Hennis, Vice President for Planning, Research and Assessment
with assistance by Dr. Darin Cozzens

www.surry.edu

INTRODUCTION

Surry Community College has begun the process of developing a Strategic Plan to guide the institution over the next five years, 2011-2016. An integral part of the planning process involves scanning the external environment to determine the trends and issues that will impact SCC in that period.

Methodology

This environmental scan provides information on six major areas that are expected to affect Surry Community College: Demographics, Economy, Environment and Energy, Trends in Higher Education, Politics, and Technology. Research for this scan drew on a variety of sources, including Economic Modeling Specialists.

DEMOGRAPHICS

The service area of Surry Community College is composed of Surry and Yadkin Counties in North Carolina. North Carolina is currently the nation's tenth largest state, with a population of approximately 9.2 million people. A large part of the state's population growth over the last five years has resulted from the migration of people from other countries and states. From 2000-2007, the Piedmont Triad region showed an increase of 128,425 persons with a 37.5% natural increase and a 62.4% net migration increase.

Ethnicity Trends

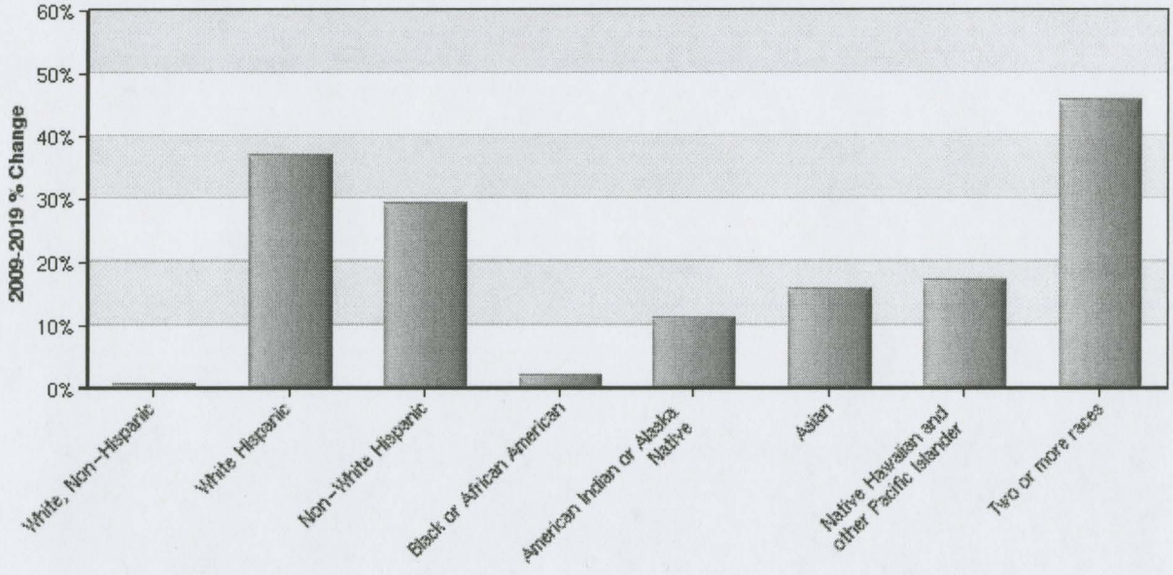
The population estimates in Table 1 show that over the next ten years, the fastest growing ethnic group will be the category of two or more races and White Hispanics. The slowest growing ethnic group will be White, Non-Hispanic. Overall, the population of Surry and Yadkin Counties is expected to grow by 4.5 percent between 2009 and 2019.

Table 1
Population Growth—Surry and Yadkin Counties, 2009-2019

Race/Ethnicity	2009 Population	2019 Population	Change	% Change
White, Non-Hispanic	94,549	94,979	430	0%
White Hispanic	10,472	14,341	3,869	37%
Non-White Hispanic	234	302	68	29%
Black or African American	4,119	4,205	86	2%
American Indian or Alaska Native	234	260	26	11%
Asian	470	544	74	16%
Native Hawaiian and other Pacific Islander	29	34	5	17%
Two or more races	785	1,144	359	46%
Total	**110,892**	**115,809**	**4,917**	**4.5%**

Source: EMSI Complete Employment—4th Quarter 2009

Figure 1
Percentage Change in Ethnicity, 2009-2019



Age Trends

Table 2 shows age trends from 2009 to 2019. During that period, the most rapidly growing age category will be 70-74 years. The primary student population from 18-24 will show small gains.

Table 2
Population Growth by Age Categories—Surry and Yadkin Counties, 2009-2019

Age	2009 Population	2019 Population	Change	% Change
85 years and over	2,598	3,269	671	26%
80 to 84 years	2,615	2,895	280	11%
75 to 79 years	3,452	4,229	777	23%
70 to 74 years	4,272	5,990	1,718	40%
65 to 69 years	5,443	6,960	1,517	28%
60 to 64 years	6,784	7,654	870	13%
55 to 59 years	7,288	8,205	917	13%
50 to 54 years	7,864	8,067	203	3%
45 to 49 years	8,328	7,693	(635)	(8%)
40 to 44 years	7,960	6,923	(1,037)	(13%)
35 to 39 years	7,581	6,353	(1,228)	(16%)
30 to 34 years	6,714	6,463	(251)	(4%)
25 to 29 years	6,256	6,906	650	10%
20 to 24 years	5,646	5,845	199	4%
15 to 19 years	7,137	6,984	(153)	(2%)
10 to 14 years	7,104	7,274	170	2%
5 to 9 years	6,987	6,982	(5)	0%
Under 5 years	6,865	7,116	251	4%

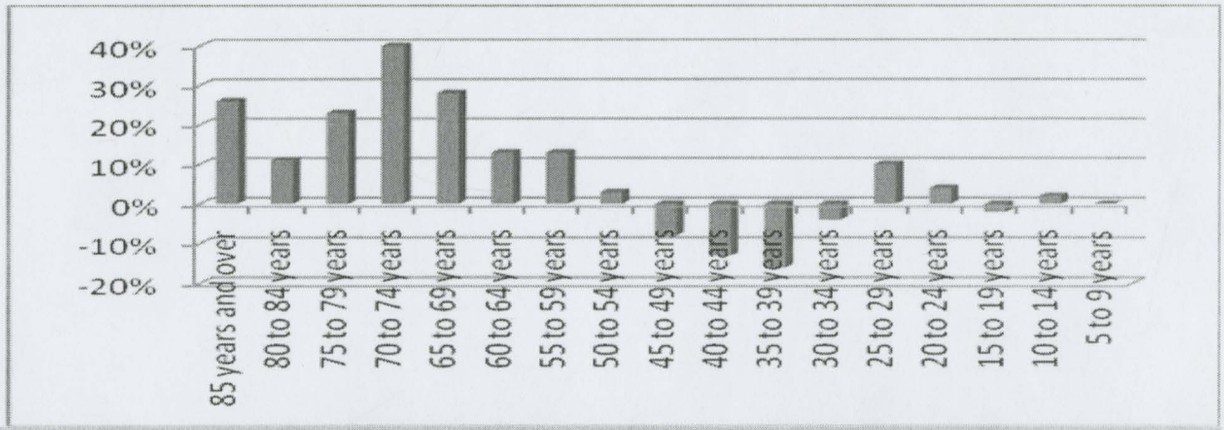


Figure 2
Percentage Change in Age Categories, 2009-2019

Demographic Implications for SCC

- **The population of SCC's service area will become more diverse over the next ten years. Surry Community College will need to provide additional programs and services to respond to changing needs.**
- **The 65-74 age group is expected grow most rapidly, and the 20-29 age group is expected to grow modestly.**

ECONOMY

In December of 2008, the United States slid into a major economic recession driven by the collapse of the banking, construction, and real estate sectors. North Carolina followed the national economic trend, but the state's unemployment rate rose faster than the national average. North Carolina's seven economic regions were affected differently by the recession, reflecting regional differences. The Piedmont Triad experienced NC's second highest unemployment rate, following only the Charlotte region. Only three sectors—government, leisure and hospitality, and education and healthcare—have posted small increases in employment during the downturn.

High unemployment in Surry and Yadkin Counties has stemmed from plant closings and layoffs. During 2009 Surry County's unemployment rate ranged from 11.8% to 13.4%, and Yadkin's, from 9.2% to 11.3%. According to reports from the Surry County Commissioners (2009), Surry's labor force has lost approximately 6,400 jobs since 1998.

The NC Department of Commerce (2009) identifies the top five employers in Surry County as Pike Electric (1,000+), Surry County Board of Education (1,000+), Wayne Farms (500+), Wal-Mart Associates (500+), and Surry County (500+). Yadkin's top five employers are Yadkin County Board of Education (1,000+), Unifi Manufacturing (1,000+), Phillips Van Huesen Corporation (250+), Yadkin County (250+), and Lydall (100+).

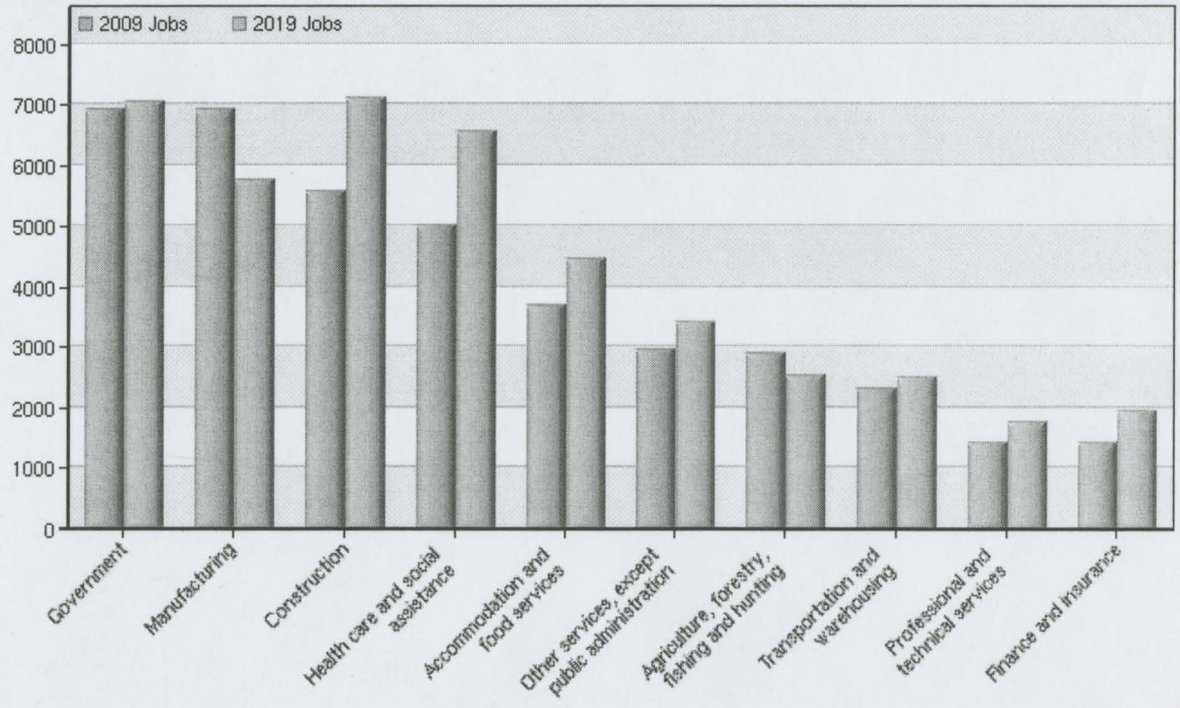
Table 3 illustrates projected job growth in Surry and Yadkin Counties over a ten-year period from 2009-2019. Although economic growth is expected to be slow during the early part of that period, eventual job growth for the area is projected at 11%. The largest growth rates over the period will be seen in finance, education and health services.

Table 3-
Job Growth by Industry—Surry and Yadkin Counties, 2009-2019

Description	2009 Jobs	2019 Jobs	Growth	% Growth	Current EPW
Trade, transportation, and utilities	10,301	10,675	374	4%	$36,127
Professional and business services	3,928	4,935	1,007	26%	$25,814
Other services	2,961	3,402	441	15%	$20,595
Manufacturing	6,916	5,763	(1,153)	(17%)	$41,300
Leisure and hospitality	4,394	5,347	953	22%	$13,371
Information	544	584	40	7%	$51,991
Government	6,929	7,060	131	2%	$42,913
Financial activities	2,697	3,663	966	36%	$28,225
Education and health services	5,272	6,908	1,636	31%	$31,455
Construction	5,568	7,102	1,534	28%	$39,392
Agriculture, natural resources, and mining	2,929	2,562	(367)	(13%)	$17,994
Total	**52,440**	**58,001**	**5,561**	**11%**	**$32,772**

Source: EMSI Complete Employment - 4th Quarter 2009
EPW Earnings Per Worker in Current Dollars

Figure 3
Growth by Industry



TOP EMPLOYERS
Surry County

Rank	Company	Industry	Employment range
1	Pike Electric Inc.	Construction	1,000+
2	Surry County Board Of Education	Education & Health Services	1,000+
3	Wayne Farms	Manufacturing	500-999
4	Wal-Mart Associates Inc.	Trade, Transportation, & Utilities	500-999
5	Surry County	Public Administration	500-999
6	Hugh Chatham Memorial Hospital	Education & Health Services	500-999
7	Northern Hospital Of Surry	Education & Health Services	500-999
8	Surry Community College	Education & Health Services	500-999
9	Vaughan-Bassett/Elkin Division	Manufacturing	250-499
10	Interface Fabrics Group South Inc.	Manufacturing	250-499
11	Hanesbrands Inc.	Manufacturing	250-499
12	Workforce Carolina Inc.	Professional & Business Services	250-499
13	Renfro Corporation	Manufacturing	250-499
14	Mount Airy City Schools	Education & Health Services	250-499
15	Lowe's Home Centers Inc.	Trade, Transportation, & Utilities	250-499
16	Food Lion	Trade, Transportation, & Utilities	250-499

TOP EMPLOYERS
Yadkin County

Rank	Company	Industry	Employment range
1	Yadkin County Board Of Education	Education & Health Services	1,000+
2	Unifi Manufacturing Inc.	Manufacturing	1,000+
3	Phillips Van Heusen Corp	Trade, Transportation, & Utilities	250-499
4	Yadkin County	Public Administration	250-499
5	Lydall Thermal/Acoustical	Manufacturing	100-249
6	Yadkin Valley Telephone	Membership Corp Information	100-249
7	Johnsons Modern Electric Co Inc.	Construction	100-249
8	Hoots Memorial Hospital Inc.	Education & Health Services	100-249
9	Trim Systems Operating Corp.	Manufacturing	100-249
10	Yadkin Nursing Care Center Inc.	Education & Health Services	100-249
11	Touched By Angels Home Healthcare	Education & Health Services	100-249
12	Cracker Barrel Old Country Store	Leisure & Hospitality	100-249
13	Peoplease Corporation	Trade, Transportation, & Utilities	100-249
14	The Austin Co.	Manufacturing	100-249

Economic Implications for SCC

- **Surry Community College must continue to align curriculum programs with the changing needs of its service area.**
- **Program reviews and needs assessments should be conducted annually to gauge interest in new programs and review the vitality of existing programs.**
- **Corporate and Continuing Education Programs will continue to provide a gateway for displaced workers who need short-term skills training and basic skills development.**

ENVIRONMENT AND ENERGY

Global warming has become an important international issue along with sustainability and alternative energy. Surry Community College will be impacted by alternative technologies (Price, 2009) due to the state's emphasis on renewable energy, continued economic development initiatives, and the need to reduce carbon emissions. Funds from the American Recovery and Reinvestment Act (Marion, 2009) have been designated for alternative energy jobs training programs. The Department of Labor has set aside $500 million for the development of such programs.

According to the U.S. Green Building Council (2009), green building construction will expand, and related jobs will continue to increase from 2009 to 2013, creating 8 million jobs. Green construction and renovation occupations are considered a fertile area for job growth because the work must be completed locally and most likely will not be outsourced .

The North Carolina General Assembly passed legislation in 2007 that will require utility companies, beginning in 2012, to provide a minimum quantity of renewable energy. On June 5, 2008, Fibrowatt (Wieronski and Gates, 2008) announced plans to build a biomass-fueled power plant near Elkin in Surry County. The plant will generate energy from poultry litter. Plant construction is expected to create 300 jobs, along with 80 additional jobs in plant operations, fuel transportation, barn clean-out services, and the operation of an ash fertilizer plant to be built on an adjacent site.

The area of Environment and Energy must also take into account the circumstances of Surry Community College students. Fuel costs, for example, may affect enrollment. If gasoline prices increase, students will understandably wish to minimize travel to campus and are likely to enroll in distance education classes.

Environment and Energy Implications for SCC

- **Alternative energy will provide opportunities for new training programs in solar, wind, weatherization, and other alternatives.**
- **Energy efficiency will continue to drive building maintenance and construction projects. SCC will need to continue to reduce energy costs.**
- **Enrollments in community colleges will be affected by the cost of gasoline, and SCC must ensure that enough distance education classes are available to meet student demand.**

TRENDS IN HIGHER EDUCATION

The post-secondary market in Surry and Yadkin Counties includes Surry Community College as well as other private and public education providers. Lees-McCrae College and Gardner-Webb University, both private institutions, provide programs on the SCC Dobson campus. Winston-Salem State University and Appalachian State University, public institutions, also provide programs. Proprietary schools offering distance education degrees—e.g., the University of Phoenix—enroll students from the college service area, but statistics are not available for the exact number.

Institution	Type	Degrees Offered	Fall 2009 Enrollment	2009-2010 Tuition & Fees
Appalachian State University	Public	Bachelor's, Master's	119 (Duplicated)	$4691.00
Gardner-Webb University	Private	Bachelor's, Master's	69	$303.00 per semester hour
Lees-McRae College	Private	Bachelor's	79	Not Available
Surry Community College	Public	Associate's, Diploma, Certificates	3550	$1703.00
Winston-Salem State University	Public	Bachelor's, Master's	60 (Duplicated)	$3970.16

Distance Education

Distance Education has expanded rapidly since the inception of the Internet. Distance Education (NCES, 2008) is defined as instruction that occurs through the use of video, audio, computer technologies, through correspondence, or CD-ROM. Instructor and students communicate but are in different locations. In 2006-07, according to the National Center for Education, 97 percent of public two-year institutions offered post-secondary distance education courses. Allen and Seaman (2007) found that almost 20 percent of post-secondary students were enrolled in at least one online course during the fall of 2006. They cite a 9.7 percent growth rate for online enrollments vs. a 1.5 percent growth in the post-secondary student population. Future online growth is expected to originate from those institutions with the greatest numbers of current online students.

Higher Education Implications for SCC

- **Distance Education provides a convenient alternative to campus classes. SCC must offer enough distance education classes, along with related student services, to meet student needs.**
- **Competition will continue to be a major factor in college recruitment. SCC will need to aggressively recruit students.**

POLITICS

The political climate for higher education (Bradley, 2009) has changed with the election of President Barrack Obama. In July of 2009 President Obama announced a federal plan called the "American Graduation Initiative" at Macomb Community College in Michigan. The initiative's aim is to increase community college graduates by 5 million over the next ten years. Financial support will also focus on improving community college facilities and adding new online opportunities.

In addition, the nation's higher education financial aid structure is being changed so that students will have greater access to funds. The U.S. Department of Education is expected to replace banks as the chief regulator of funding. The U.S. House has passed legislation to increase Pell Grants over time from $4,731 to $5,500 per year.

Congress also passed a new GI Bill that includes four years of in-state undergraduate tuition and fees, room and board, book stipends, tutoring fees and moving expenses. More veterans attend community colleges than four-year colleges.

On January 15, 2010, North Carolina Governor Beverly Purdue announced a new education initiative called Career and College—Ready, Set, Go! The goals of this initiative include increasing numbers in the following categories:

1. high school students taking college credit classes,
2. students graduating from high school,
3. high school graduates attending college, and
4. college students completing degrees.

On January 18, 2010, North Carolina submitted an application for $469.5 million in federal funding from the Race to the Top grant program. If the grant is awarded, the funds will be spent over a four-year period. All of North Carolina's local education associations supported the funding application.

Political Implications for SCC

- **Additional opportunities for funding will be available to SCC through competitive grants offered by the federal government.**
- **Accountability will continue to be a federal and state focus, and Surry Community College will have to satisfy more rigorous reporting requirements.**
- **Veterans and other students will have access to new sources of financial aid. SCC will need to be responsive to these students.**

TECHNOLOGY

Technology in higher education has evolved from basic data processing and computer instruction to advanced IT departments supporting all facets of education. Technology supports student registration, course management, distance education, communication, and a variety of other areas.

The current generation of students gained access to the Internet before they enrolled in elementary school and are referred to as the Net generation. Oblinger and Oblinger (2010) describe the Net Generation as digitally literate, connected, quick, experiential, social, team- oriented, and achievement-oriented They are comfortable with technology and want immediate access to it in the educational setting. New instructional methodologies such as podcasts and streaming video are expected.

A recent survey by EDUCAUSE (2009) found that ownership of desktop computers among students is declining while laptop use is increasing. More students are using hand-held devices to access the Internet, which could strain IT resources in the future. Use of interactive communication tools such as social networking and text messaging is increasing while instant messaging is decreasing.

SCC continues to support technology investments in its network and computer systems to support student, staff, and faculty needs. Undoubtedly, technology will continue to change, and investments must keep pace.

Technology Implications for SCC

- **Investments in technology and infrastructure must keep pace with student demands for current electronic products and services.**
- **Communicating with students through technology can be highly cost-effective and seamless.**

CONCLUSION

This report reviewed six major areas of influence that may impact Surry Community College in future years. It was created in January of 2010 and may not anticipate all circumstances or events that would affect Surry Community College.

The most significant points of the environmental scan are:

- **Surry and Yadkin Counties will become more diverse over the next ten years. Surry Community College will need to provide additional programs and services to respond to changing needs.**
- **Surry Community College must continue to align curriculum programs with the changing needs of its service area.**
- **Alternative energy will provide opportunities for new training programs, and energy efficiency will continue to drive building maintenance and construction projects.**
- **SCC must meet the increasing demand for distance education.**
- **Accountability will continue to be a federal and state focus, and Surry Community College will face rigorous reporting requirements.**
- **Technology will remain an important component in supporting the learning environment**

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Meeting Minutes

Project: Surry Community College
Sciences and Teaching Auditorium
Advance Planning

Date of Mtg.: April 23, 2009

Attendees:		
	Dr. Deborah Friedman	SCC, President
	Dr. Frank Sells	SCC
	Curtis Workman	SCC
	Susan Pendergraft	SCC
	Michael Ayers	SCC
	Cheryl Fielder	SCC
	Marion Venable	SCC, Foundation
	George Sappenfield	SCC, Steering Committee
	Hal Stewart	SCC, Steering Committee
	Gene Rees	SCC, Steering Committee
	Joe Hennings	SCC, Board of Trustees
	Bronald Johnson	Little
	Tomas Eliaeson	Little

This Advance Planning Meeting was held on the campus of Surry Community College in Dobson, NC. The purpose of this meeting was to review design concepts for the Sciences & Teaching Auditorium and make a selection on one concept for further development.

1. Bronald Johnson reviewed the Advance Planning process and the purpose of this meeting.

2. Tomas Eliaeson reviewed the original goals and objectives that were set for the Science Building and Auditorium in the previous meetings.

3. Tomas also gave a general overview and analysis of the project site showing how the building's location would relate to the rest of campus and the Viticulture & Enology Center.

4. Bronald reviewed current construction cost numbers for similar higher education performance and science facilities. The cost per sq. ft. that is being used to calculate the cost for the new building is well within the range of similar projects but less than the median cost.

5. Bronald reminded the group that at the time of the Facilities Master Plan the projected sizes for the buildings were 40,000 sf for the Auditorium and 20,000 sf for the Sciences Building. Both of these numbers have increased based on spaces that have been requested by the Owner to be included. The Owner needs to determine how critical these additional spaces are to the project as they will increase the total cost.

6. Bronald reviewed the following Science Building program scenarios:
   - Option #1 for the Science Building is if all requested spaces were included and the total building size is 48,785 gross square feet.
   - Option #2 is if additional Biology Classroom/Labs and Offices were reduced from 4 to 2, and if additional Anatomy & Physiology Classroom/Labs and Offices were reduced from 6 to 2. This total building size is 39,389 gross square feet and the design concepts that are presented in the meeting reflect this program.
   - Option #3 reflects a further reduction of new Classroom/Labs and Offices in Biology,

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Anatomy & Physiology, Horticulture, and Animal Lab to make the building 2 stories instead of 3 stories or 3 stories with a future addition. This total building size is 27,513 gross square feet.

7. Bronald reviewed the Auditorium program and noted that although it was at 46,000 square feet there is enough flexibility in the design that it could be reduced in size to get closer to 40,000 square feet. It was noted that some spaces should not get smaller or eliminated because they may be critical to how the building functions, for example some groups that come to perform may require star dressing rooms. The Lobby should also not be reduced in size because it will be highly utilized and the public may not use the Grand Hall.

8. There was a discussion about whether the Auditorium was supposed to be designed around 1,000 seats or 1,200 seats and it was determined that 1,000 seats was the correct number of seats.

9. Tomas Eliaeson reviewed the design concept and how it is intended to pick up on the rhythm established in the Viticulture & Enology Center. The following are comments made on the two options.

   Option #1
   - É This option orients the building with the Auditorium to the south and the front of the Auditorium facing the Grand Hall. The Science Building is to the north organized around an east-west circulation spine and separated from the Auditorium by a narrow courtyard.
   - É Advantages to this concept include (1) a direct relationship with the front of the Auditorium and the Grand Hall, (2) a strong cross axis that creates a formal court and a more intimate court, and (3) the seating of the Auditorium works with the slope of the site.
   - É Disadvantages to this concept include (1) the service area is facing main campus, (2) the science building is less visible and less accessible from main campus, and (3) the side of the Auditorium and tall fly tower are facing main campus.

   Option #2
   - É This option orients the building with the Auditorium rotated so that the front of the Auditorium is facing campus and the Science Building is to the west of the Auditorium. The west face of the Science Building is stepped to follow the angle of the adjacent building and pick up on the rhythm from the Viticulture & Enology Center.
   - É Advantages to this concept include (1) the Auditorium entry has a grand presence facing the main campus, (2) there is a side Lobby that faces the Grand Hall and courtyard, (3) the Science Building is visible and easily accessible from the main campus, (4) the fly tower is pushed toward the back of the site, (5) there is a private court area in the rear that could be used by the Horticulture program, and (6) the service area is toward the back of the site and easily accessible from Main Street.
   - É Disadvantages to this concept include (1) the seating of the Auditorium works against the slope of the site.

10. Everyone felt that Option #2 seemed to bring the project together as one complete whole and strongly agreed that the Design Team should proceed with development of Option #2. The following suggestions were made for further development:
    - É There should be a covered connection between the entry of the Viticulture & Enology Center and the Auditorium Lobby.
    - É The connector between the Auditorium and Science Building could be moved further south.
    - É At least one bay at the north end of the Science Building could become an alternate to get the building closer to the original square footage and construction cost.
    - É There could be a greenhouse on the roof for Horticulture.

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11. The next step is for Little to develop Option 2 and present it to the Board at their May 11th Meeting.

If you have any additional comments or corrections to these minutes, please do not hesitate to contact our office.

Submitted by:

LITTLE

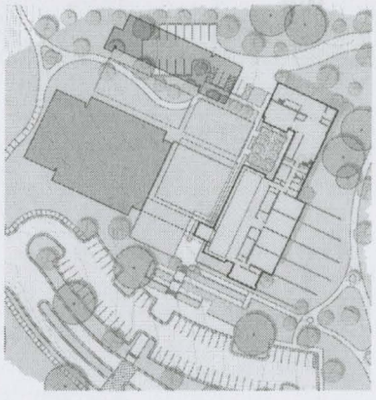
Bronald Johnson

Bronald Johnson, AIA, LEED® AP
Studio Principal
College & University Studio

cc: All attending
Shannon Rydell Little
Phil Tackett Little
Kyle Smith Theatre Collaborative

SCC Sciences & Teaching Auditorium

Surry Community College



VISIONING QUESTIONNAIRE

Defining the Goals and Objectives… Your input will be helpful as we begin to envision this new project.
Please be as specific as you can in your responses. Thank you!

1. Why are you doing this project?

2. What outcome or result are you trying to achieve? Describe the main goals for this project.

3. What has to happen in order for the project to be considered a success? Please be as specific as possible.

4. How do you want this project to be viewed by the community (what 'message' would you like to convey)?

5. What would you like to achieve that might be difficult or impossible?

6. What's holding you and/or your group/team back?

7. Shall the Teaching Auditorium support performances as well? What types? Will a fly-tower be required?

8. What seating capacity are you looking for in the Auditorium?

9. What Sciences will be taught in the new facility? What infrastructure needs will you need?

~~10. Are there other science facilities you admire, and why?~~

~~11. What do you like / dislike about your existing Science spaces?~~

12. How do you see the relationship between the Teaching Auditorium and the Science Building?

13. What types of spaces do you need in the whole facility (e.g. open/closed, private/semiprivate, etc)?

14. How strong is your need to have flexible spaces?

15. What are your technology requirements? Desires?

16. How do you see the new facility supporting the growth of Surry Community College?

17. How do you see this facility's relationship to the Center for Viticulture and Enology?

18. How do you see the New Facilities' relationship to the rest of campus?

19. What are your academic objectives for the next 5 years? 10? 15?

20. Will you need room for expansion?

21. In what ways can the new facility's environment contribute to learning?

22. Describe some new teaching concepts/trends that this project could facilitate. Be as specific as possible.

23. How do you see 'sustainability' (green design) being incorporated into this project? Are you trying to achieve LEED Certification?

Thank you for your input as we begin development of this exciting new project!

NORTH CAROLINA COMMUNITY COLLEGE SYSTEM
DIVISION OF FINANCE AND BUSINESS
ADMINISTRATIVE AND FACILITY SERVICES
PROPOSED RENOVATION / REHABILITATION OR CAPITAL IMPROVEMENT PROJECT
FOR THE BIENNIUM 2009 - 2011

Revised

COMMUNITY COLLEGE: SURRY COMMUNITY COLLEGE **DATE:** 24-Nov-09

PROJECT IDENTIFICATION: Science & Teaching Auditorium: Phase II Viticulture & Enology Center

PROJECT LOCATION/COUNTY: Surry Community College Main Campus/Surry County

PROJECT DESCRIPTION & JUSTIFICATION: (Attach additional data as necessary to indicate need, size, function of improvements and master plan.)

Phase II of the NC Viticulture & Enology Center will consist of an auditorium housed inside a ***Sciences & Teaching Auditorium*** complex. The auditorium will accommodate seminars, symposia, conferences, commencement programs, agri-tourism opportunities, cultural events and general meeting space for a variety of college and community functions to include major events for the grape and wine industry across the region, state, and nation. New science labs and classrooms will be housed in the Science wing of this project. This facility will provide much needed state-of-the-art laboratories for biology, chemistry, physics and other science that will accommodate growth in the allied health and college transfer programs.

CURRENT ESTIMATED CONSTRUCTION COST*	QTY	UNIT	COST PER UNIT	TOTAL
A. **Land Requirement**	1	Lump Sum		$0
B. **Site Preparation**				
1. Demolition	1	Lump Sum		
2. Site Work***	1	Lump Sum		$800,090
C. **Construction**				
1. Utility Services**	1	Lump Sum		$107,200
2. Building Construction	1	Lump Sum		$14,322,837
3. Plumbing	1	Lump Sum		$1,204,350
4. HVAC	1	Lump Sum		$2,506,000
5. Electrical	1	Lump Sum		$2,857,600
6. Other: _____	1	Lump Sum		TBD
D. **Equipment**				
1. Fixed	1	Lump Sum		$1,164,205
2. Moveable	1	Lump Sum		$402,000

ESTIMATED CONSTRUCTION COSTS			$23,364,282
OWNER'S PROJECT COSTS			$414,165
CONTINGENCIES	3 %	(% of Estimated Construction Costs)	$ 700,928
DESIGN FEE	10 %	(% of Estimated Construction Costs + **Contingencies**)	$ 2,406,521
ESTIMATED COSTS		(Sum of **Estimated Construction Costs + Owner's Costs + Contingencies + Design Fee**)	$26,885,897

Escalation % = 0.67 per month multiplied by number of months

(From Est. Date to mid-point of construction) = 24 months 16.08 %

ESCALATION COST INCREASE (Estimated Construction Costs x Escalation %) $ 3,756,977

TOTAL ESTIMATED PROJECT COSTS **(Estimated Costs + Escalation Cost Increase)** **$30,642,873**

* Attach basis and justification for estimate. Include description, quantities, units, special features, similar cost on recent projects, etc.

** Attach explanation of any special building, mechanical, or electrical service requirements with appropriate distance to existing water, gas, electrical or other utility service.

*** Include items such as grading, roads, walks, parking, etc.

APPROVED BY: Susan L. Pendergraft **TITLE:** Vice President of Administrative Services **DATE:** 27-OCT-09

Project Name:

Description		Quantity	Unit	$/Unit	Total
A Land Requirement					
			ea		$0
	Total				$0
B Site Preparation					
1. Demolition					
	Asbestos		ea	0.00	$0
		1	gsf	0.55	$42,640
			gsf	0.00	$0
	Total				$42,640
2. General					
	Grading - Site Preparation	1	ea	757,450	$757,450
	Total				$757,450
C Construction					
1. Utility Services					
	Steam		lf	0.00	$0
	Chilled water		lf	0.00	$0
	Domestic water	620	lf	75.00	$46,500
	Sanitary sewer	180	lf	40.00	$7,200
	Storm water	1100	lf	45.00	$49,500
	Electrical	200	lf	20.00	$4,000
	Total				$107,200
2. General Construction					
			ea	0.00	$0
			ea	0.00	$0
		77700	gsf	184.34	$14,322,837
			gsf	0.00	$0
			gsf	0.00	$0
	Total				$14,322,837
3. Plumbing					
	Plumbing	77700	ea	13.00	$1,010,100
	Fire Protection	77700	sf	2.50	$194,250
	Total				$1,204,350
4. HVAC					
	HVAC	77700	gsf	30.00	$2,331,000
			gsf	0.00	$0
	Building Automation	1	ea	65,000.00	$65,000
		2	ea	55,000.00	$110,000
			ea	0.00	$0
	Total				$2,506,000

5. Electrical					
	Lighting & Power		gsf	0.00	$0
	Lighting Controls		gsf	0.00	$0
	Fire Alarm		gsf	0.00	$0
	Lab/Science	31300	ea	32.00	$1,001,600
	Auditorium	46400	ea	40.00	$1,856,000
			ea	0.00	$0
					$0
	Total				$2,857,600
6. Other Construction Cost					
	Landscaping and irrigation		ea	0.00	TBD
	Total				TBD
D Equipment					
1 Fixed					
	Casework & Special Systems	77700	ea	9.91	$769,800
	Auditorium Seating & Treatments		ea	5.08	$394,405
			ea	0.00	$0
	Total				$1,164,205
2 Moveable					
	Furnishings - modular furniture		ea	0.00	$187,000
	Scientific Equipment		ea	0.00	$215,000
	Total				$402,000
Owner's Project Costs					
	Testing	1	ea	45,654.00	$45,654
	Surveying, etc.	1	ea	6,811.00	$6,811
	Programming		ea	0.00	$0
	Gen infrastr assess, e.g. gas lines	1	ea	4,700.00	$4,700
	Chilled water and steam assessments		ea	0.00	$0
	Electrical assessment		ea	0.00	$0
	Parking Assessment		ea	0.00	$0
	Sanitary Sewer assessments		ea	0.00	$0
	Domestic water assessment		ea	0.00	$0
	Storm Water Assessments		ea	0.00	$0
	Commissioning		ea	0.00	$0
	Telecommunicatio ns	1	ea	107,000.00	$107,000
			gsf/yr	0.00	$0
					$0
	Owner's Reserve		ea	0.00	$250,000
	Total				$414,165