



# Arts & Health Sciences Feasibility Study

Final Report | 11 September 2019



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# Executive Summary

## Introduction

Greenville Technical College retained DP3 Architects, Ltd. and our team to study the feasibility of moving several existing academic programs under one roof. The programs considered are currently housed in various buildings on multiple campuses.

Our design team includes the following consultants:

- Peritus Engineers & Associates, Inc. – mechanical and plumbing engineer
- Burdette Engineering – electrical and information technology engineer
- Aiken Cost Consultants – cost analysts

During this study, our team toured existing facilities and visited a potential site. The Greenville Technical College 2012 Academic Master Plan prepared in 2012 was also consulted. The team met with designated Greenville Technical College stakeholders who are recognized for their leadership within a program, department, or with facilities/building systems. These meetings were held to discuss program needs as related to physical space requirements. The result is a comprehensive programming document for future project development.

The scope of the work included the following:

- Programming sessions to determine a concise program of spaces required
- Programming sessions to determine appropriate building systems including mechanical, plumbing, electrical, and information technology
- Code compliance
- Sustainable recommendations
- Conceptual design character study
- Order of magnitude cost analysis

## Study Goal

The goal of this study is to support the college's academic mission by creating a state-of-the-art learning facility which promotes collaborative learning while providing opportunities for student engagement. The study reviews current as well as future needs of the college in these program offerings. Strategically, the goal of this study will be to recommend a new facility which will inspire teaching, learning, innovation, and student success.





## Existing Facilities

Building 104 (the UT Building) currently houses the Arts & Sciences Division and Academic Advancement and other related departments. This building and operational systems were documented as being inadequate for program needs and generally being in poor condition, as noted in the May 2012 Academic Master Plan conducted by others. Extensive building system upgrades would be required to make spaces and systems adequate for the college's current and future needs.

The May 2012 Academic Master Plan document also noted the Health Sciences Building and its systems as being in "extremely poor condition." Furthermore, the report states, "The building has a very inflexible structural system, which makes renovation and enlargement of the building's science labs impossible."

Given the condition of these two buildings, the college directed the focus of the feasibility study on a new state-of-the-art facility to house the following academic areas:

- Academic advancement
- Arts & Sciences
- Health Science Division
- EDCT (Economic Development & Corporate Training)

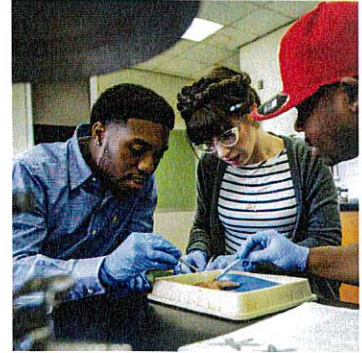
## Conclusion

The 2012 Academic Master Plan outlines the need for a new Arts & Sciences/Health Sciences building within this decade. This will allow Greenville Technical College to maintain its competitive edge among institutions with similar offerings and continue to offer students excellent programming and resources. This feasibility study has determined a new facility of approximately 125,000 square feet would meet the needs and goals of the college. The following information expands on the spaces needed for the academic programs and the strategy to develop a state-of-the-art facility for teaching and learning, one that provides inspiration, fosters innovation, and ultimately encourages student success.

# Study Approach

## Program Facility Tour

The design team toured the campus facilities which currently house the academic programs in this study. The team gained an understanding of how departments utilize their facilities and how the facilities may pose limitations to teaching, learning, and student engagement. The time spent gave the design team the opportunity to interact with departmental leadership and observe the layout. The design team gained an understanding of the classroom and laboratory requirements; faculty, staff, and student needs; collaborative opportunities; functional relationships; proximity relationships; space needs; equipment requirements; and storage needs. Building systems were also reviewed.



## Programming Sessions

Greenville Technical College retained DP3 Architects, Ltd. to complete a programming and site feasibility study on the Barton Campus to consolidate selected departments into one facility. A series of meetings were held with administration and departmental leadership to review facility needs for current and future academic programs.

The program information was documented on flip charts during the discussions. In a summary meeting, the Greenville Technical College team had the opportunity to review each of the program spaces and review design concepts.

## Review of 2012 Academic Master Plan Document

The design team reviewed the 2012 Academic Master Plan to understand the objectives and strategic plan for this academic facility.

## Key Issues

The following items were identified during the programming session as being key to developing a facility which meets the goals of the 2012 Academic Master Plan.

### Teaching/Learning

- Obtain an accurate classroom count by determining which classrooms and labs could be shared between departments
- Provide flexible teaching spaces provide enhanced technology in classrooms and labs
- Maintain class sizes: 30 students in standard classroom, 40 students in expanded classrooms, 24 students in science labs, and 30 students in computer labs
- Encourage student/faculty collaboration and opportunities for engaging conversations
- Encourage recruitment opportunities among faculty and staff
- Encourage further development of smaller programs such as professional development and the arts
- Provide storage, storage, and more storage

### Social engagement

- Develop student-centric spaces to allow instruction to focus on skills and practices that enable lifelong learning and independent problem solving
- Provide opportunities for spontaneous conversations between students, faculty, and staff
- Provide space for collaborative and interactive work outside of the classroom
- Create a modern collegiate and academic environment which fosters a sense of community and encourages academic excellence

### Community interaction

- Encourage community access to the facility
- Provide multipurpose that is available for community meetings, symposiums, and events
- Offer community health screenings on campus
- Expand professional development course offerings
- Provide access to cultural arts in the music and theater arts

### **Analysis of Potential Building Site**

The 2012 Academic Master Plan previously identified parking lot H as the site for this proposed building. This site offers many advantages as follows:

- Central location to the campus core, green commons, and the new pedestrian bridge
- Connections to parking areas and transit nodes
- Access to pathways connecting other campus buildings
- Central location to campus utilities

### **Feasibility Study Development**

The design team compiled and analyzed all the information gathered. The content was developed into four key components for the final feasibility study, as follows:

1. Program of spaces to determine the appropriate size in square feet with adjacencies noted
2. Conceptual design to understand site issues, internal building space relationships/ adjacencies, and possible interior and exterior architectural forms
3. Conceptual narratives which outline building systems
4. Conceptual order of magnitude cost estimate



# Proposed Facility Overview

## Program Summary

The design team and the Greenville Technical College leadership team met on several occasions to discuss space needs for Academic Advancement, Arts & Sciences, the Health Sciences Division and other supporting spaces. The result was a comprehensive six-part program. The program areas included the following:

- I. Academic Advancement
- II. Arts & Sciences
- III. Health Science Division
- IV. EDCT (Economic Development & Corporate Training)
- V. Common Spaces
- VI. Mechanical/ Electrical/Information Technology

The team utilized standard square foot rules for laboratory, classroom, and office sizes. This was to promote flexibility and ease of utilization. A multiplier of 1.20 was applied to the total net area to account for such things as wall thicknesses, circulation, mechanical chases, and other miscellaneous needs.

The gross square foot area required to support the program is approximately 125,000 square feet. A proposed architectural form of three stories was determined the best approach for accommodating a program of this size. This allows for a smaller building footprint and allows certain program spaces to occur on multiple floors. The conceptual building description and building character are outlined in the architectural narrative section of this report. Building system narratives are also included.

The following pages outline the architectural narrative, building systems narrative, and the program of spaces for the new Arts & Sciences/Health Science Building.



## Architectural Narrative

The design team created floor-plate diagrams to respond to the program. Adjacencies and space relationships were reviewed. The resulting conceptual building is three stories with the following areas per floor-plate diagram:

- First floor 49,900 SF
- Second floor 35,200 SF
- Third floor 39,400 SF

Total proposed building area = +/- 124,500 gross square feet

### Code Considerations

For life safety, the project will be governed by the 2015 International Building Code and under the jurisdiction of the South Carolina Office of the State Engineer. The following code considerations apply:

- Occupancy Type – Business (B) with Assembly (A-3) as most restricted
- Construction Type – III B, non-combustible, sprinklered
- Maximum number of stories allowed – three
- Maximum building height – 55 feet
- Maximum area per floor with area increase – 50,000 square feet

The project is also governed by Accessibility Code ANSI A117.1 2017 Edition. The proposed building will provide access to entry points with grade entry or ramps. All floors will be accessible with elevators and accessible entries to interior rooms will be provided. Accessible toilets will be provided.

### Sustainability

Per South Carolina state law, this facility must comply with energy conservation and sustainable construction. The project must be designed to achieve at least LEED Silver certification from the US Green Building Council or at least two globes certification using the Green Building Initiative's Green Globes rating system. As the project develops, it is recommended that a consultant specializing in sustainable best practices be engaged to guide this process.

### Building Components

The Construction Specifications Institute (CSI) is the construction industry organization which classifies building components in a standardized format. The CSI Format is broken into divisions by industry segments. Using the CSI divisions, the components of the new academic building are identified below.

#### Division 3 Concrete

- Footings and foundations
- Slab on grade
- Suspended slabs
- Exterior sidewalks



#### Division 4 Masonry

- Brick veneer, complimenting the brick on existing campus buildings
- Concrete masonry units at stair and elevator towers

#### Division 5 Metals

- Steel structural system consisting of columns, beams, bar joists, and metal decking
- Metal floor and roof decking
- Metal pan stairs, and guard and handrails

#### Division 6 Wood

- Millwork and laboratory casework

#### Division 7 Thermal and Moisture Protection

- Foundation damproofing and waterproofing
- Flexible wall flashings and vapor barriers
- Metal flashings and copings
- Thermal insulation – ridged roof insulation, R30
- Thermal insulation – continuous wall insulation, R7.5
- Thermal insulation – cavity wall, R13
- Mechanically fastened single-ply membrane

#### Division 8 Doors and Windows

- Hollow metal door frames – welded
- Metal core service doors
- Manufactured solid core, prefinished interior wood doors
- Wide-style prefinished aluminum storefront entrances
- Prefinished aluminium storefront framing systems
- Prefinished aluminum curtain wall systems at building lobby
- Hardware – mortice type, lever sets compatible with campus standard, access controlled as required
- Glazing – exterior glazing to be 1" thick insulating glazing with Low E film, tinted, with a low SHGC number balcony guard rails
- 1/2 inch glazed railing system at interior balcony

#### Division 9 Finishes

- Metal stud systems – 6-inch metals studs at perimeter walls, 3 5/8-inch metal studs at all interior walls with sound attenuation blanket between classrooms, offices, conference rooms, laboratories, and toilets
- 5/8-inch gypsum wall board, standard
- Tiling – porcelain tile in all toilet rooms and on walls and floors
- Ceilings – 2x2 tegular lay-in on suspended grid with sound attenuation blanket at the perimeter of all classrooms, labs, offices, and toilets
- Flooring – commercial-grade carpet tile in all classrooms and offices; LVT planks in all corridors, chemical-resistive flooring in all laboratories
- Wall finishes – commercial-grade paint products



Division 10 Specialties

- Exterior building sign/graphics
- Building directories
- Room designation signs
- Visual display boards
- Whiteboards
- Fire extinguishers
- Toilet accessories

Division 11 Equipment

- Catering, food service equipment
- Break area equipment
- A/V equipment
- Laboratory equipment

Division 12 Furnishings

- Commercial-grade office, classroom, and lounge furniture
- Classroom lecterns, mobile and provided with A/V controls, power and data

Division 13 Special Construction

- Not used

Division 14 Conveying Systems

- Elevator – no machine room, two required

Engineering requirements provided in separate narratives on the following pages.

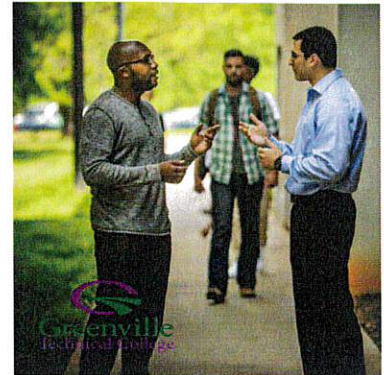
## Building Systems Narrative

### Introduction

The design team met with Greenville Technical College's building systems leadership to discuss required systems to support the academic spaces. Conversations included the following topics:

- Comparison of mechanical systems – central power plant versus stand-alone need for a generator
- Building systems management controls
- LED lighting
- Efficiency and sustainability
- Capital costs and life cycle considerations
- Information technology requirements

The following narratives conceptually describe the building systems required for the program spaces.



## Mechanical - HVAC

### General

The conceptual design of HVAC systems shall include general system descriptions and approximate system sizing for estimating purposes. The project includes proposed new building construction of approximately 125,000 square feet and will consist of three levels. The building will support programs including academic advancement, arts & sciences, path center, and health sciences.



### Proposed HVAC System – Central Plant / Waterside

Cooling is proposed to be provided by an extension of the central energy plant's central chilled water system. This requires extension of existing campus underground chilled water piping to be directed to the new building. Estimate of chilled water plant capacity is 550 Tons based upon proposed building size and programs. This capacity requires an estimate of 1100 GPM of flow (based upon 12 degree temperature differential), and 8" supply and return piping. The piping should enter the main wet mechanical room at grade level and shall form a cross-over bridge to decouple the building pumps/piping from the campus plant.

Heating is proposed to be provided by an extension of the central energy plant's central hot water system. This requires extension of existing campus underground hot water piping to be directed to the new building. Estimate of hot water plant capacity is 5,000 MBH based upon proposed building size and programs. This capacity requires an estimate of 333 GPM of flow (based upon 30 degree temperature differential), and 6" supply and return piping. The piping should enter the main wet mechanical room at grade level and shall form a cross-over bridge to decouple the building pumps/piping from the campus plant.

Underground chilled water and hot water piping is proposed to be "preinsulated type" with carrier pipe, insulation, and HDPE jacketing for direct burial.

Above-ground piping is proposed to be schedule 40 carbon black steel. Above-ground insulation to feature fiberglass insulation with "paper free" jacketing. Exposed mechanical room piping to feature PVC jacketing and covers.

Distribution pumps (two each for chilled water, and two each for hot water) shall be located in the main wet mechanical room to distribute water to air handling units and terminals as required. Pumps shall be variable speed type with Variable Frequency Drives to allow for variable flow distribution. Pumps shall be end suction base mounted type, and motors shall feature shaft grounding rings.

A condensing-type heating hot water boiler shall be utilized to provide summer time reheat capacity for times when central campus boiler plant is disabled. This boiler is targeted to be located in the main wet mechanical room.



### Proposed HVAC System – Air Side

Central Station Air Handling Units: Shall be indoor type, double-wall construction/casing, and shall feature integral exhaust fan, and airside economizer section with low-leak dampers, 2" thick angled filter rack, hot water heating coil, chilled water cooling coil, and supply fan. Access sections shall be provided between coils and between filter section and coils to allow for coil cleaning maintenance as well as providing room for control sensors/components. Drain pans shall be sloped and shall be stainless steel construction. Both exhaust and supply fans shall feature variable frequency drives. Air handling units shall be variable volume type, where supply fan motors change speed based upon duct static pressure and exhaust fan motors change speed based upon building pressure measurements due to economizer operation. Air handling units to be located in multiple mechanical rooms located on each floor. Air handling units serving laboratories shall feature make-up air capacity to offset laboratory exhaust systems. These systems shall also feature energy recovery wheels to allow for airside total energy recovery (latent + sensible recovery). System sizing and zoning to be determined based upon future design of space layouts within the building.

Variable Air Volume Boxes (VAV): Shall be parallel fan powered arrangement with 1" thick foil faced insulation, with filter rack and heating water coil on plenum inlet, fan motors to be ECM type. VAV Box controls shall be Johnson Control (JCI) DDC type with remote temperature sensors.

Space Exhaust Systems: Toilet spaces and janitors closets shall feature exhaust fan systems per code.

Lab Exhaust Systems: Laboratories shall feature dedicated hood exhaust systems with lab fans and stacks located on the roof.

IT/Data rooms: Standalone DX cooling systems shall be used to provide required cooling/dehumidification and/or humidification to main MDF and other IT rooms. Desired systems to be Computer Room Air Conditioners (CRAC) units, equal to "Liebert", providing longer term reliable cooling duty performance, than commercial mini-split systems.

HVAC Ductwork: Supply ductwork shall be either rectangular, flat oval, or round construction, with external duct wrap insulation, 2" thick 1.5 pcf density. Round ducts shall be spiral seam construction. Duct wrap insulation joints shall be sealed with fabric and vapor tight mastic joints (no insulation tape permitted). Concealed return ducts shall also be externally wrapped with same insulation. Where no ceiling exists, and ducts are exposed, ductwork shall be double wall construction with paint-grip finish. Ductwork ahead of VAV Boxes shall be +10" pressure class construction, and ductwork downstream of VAV boxes shall be +2" pressure class construction. Duct construction shall conform to SMACNA. Laboratory exhaust ducts shall be continuously welded stainless steel construction.

HVAC Equipment: New HVAC insulation shall comply, at a minimum, with the performance and efficiencies listed in the 2009 International Energy Conservation Code (IECC), or latest edition at time of construction. System operation shall exceed requirements of ASHRAE 90.1 baseline in order to achieve points with Green Building Rating systems.

HVAC Controls: Building shall be equipped with Johnson Controls (JCI) direct digital building automation system and shall extend and connect to the existing campus' controls infrastructure. Controls system architecture shall feature "BACNet" communications protocol. Densely occupied spaces shall feature CO2 sensors to allow for resetting of outside air quantities.

HVAC Test & Balance: All airside and waterside systems shall be tested, adjusted, and balanced by a NEBB certified test and balance firm.

### Plumbing Systems

New indoor plumbing systems will be required for new fixtures to be shown on the architectural plans. The new work is designated in the following areas:

- Water closets shall be equipped with 1.28 gpf flush valves, sensor activated, and hard-wired electric (no battery). Gang toilet floor drains shall feature trap primers.
- Toilet lavatories include new hard wired electric metering-type faucets.
- Sinks are anticipated to be located in each break room area and large conference rooms. It is anticipated that break room areas shall feature ice makers, coffee makers, and water lines for vending machines.
- Water coolers shall feature ADA compliant bi-level water coolers with integral bottle fillers.

Plumbing materials and fixture requirements:

- Waste and Vent Piping System: Building sanitary sewer waste and vent piping above grade, including piping located in return air plenums, shall be service weight no-hub cast iron with 4-bolt couplings. Vent piping below 2" may be schedule 40 galvanized steel. Below grade piping shall be hub and spigot cast iron.
- Domestic cold Water Supply: Water supply (domestic cold/hot/and recirc) service shall be hard temper-type "L" copper. Fittings and valves shall be all bronze construction, and certified "no lead". All domestic water piping (hot, cold, recirc) shall be insulated with R values and thicknesses as specified in 2009 IECC energy code, or latest edition as applicable.
- Domestic Hot Water heating: New plumbing fixtures requiring domestic hot water shall be supplied through a new domestic water heating system consisting of a new condensing-type, gas tank-type water heater. All domestic water piping (hot, cold, recirc) shall be insulated with R values and thicknesses as specified in 2009 IECC energy code, or latest edition as applicable. Hot water shall be stored at 140 F and shall feature ASSE compliant master mixing valve. In addition, lavatories, and other fixtures requiring scald protection shall be supplied with tempered hot water from an ASSE certified point-of-use mixing valve to protect occupants from elevated water temperatures.
- Plumbing Fixtures: Flush valve fixtures such as water closets and urinals shall feature "low flow" flushing. 1.28 gpf for water closets and 1/8 gpf for urinal. Flow fixtures such as lavatories and showers shall feature "low flow" aerators and/or faucets as well.

## Electrical Narrative

The electrical installation for the above project in Greenville, SC shall conform to the requirements of the following documents:



Current South Carolina codes: 2015 Editions of the International Building Code; the International Fire Code; the 2009 Edition of International Energy Conservation Code; the 2014 National Electrical Code; the Latest Edition of the ICC/ANSI A1; the Building Energy Efficiency Standard Act; and the Americans with Disabilities Act.

### Power

The facility is approximately 120,000 to 130,000 square feet, three levels, and shall be fed from utility transformer at 480/277volts, three phase, four wire. The power utility is Duke Energy.

The main service entrance will terminate in the first floor main electrical room on a switchboard with 3000 amp main circuit breaker with ground fault protection, reduced energy switch, surge protective device and metering capabilities for tracking HVAC and lighting usage in the building. All main switchboard circuit breakers shall have electronic trip settings. The first floor main electrical room shall be 10'x20' and arranged with stacked 6'x8' closets overhead on the floors above. On the opposite side of the building, stacked 6'x8' closets shall allow low voltage circuits to be routed without derating and reduce conduit costs.

Each floor shall contain an 800-amp, 480/277-volt, three-phase panel for mechanical AHU and VAV boxes with electric heat. In addition, a 225-amp, 480/277-volt, three-phase panel shall service lighting as well as step-down transformers for 208/120-volt, three-phase tenant power (225-amp panel with 75-kVA transformer). A service-power panel (100-amp, panel with 30-kVA transformer) shall be provided in the electrical rooms. The satellite rooms on each floor shall each contain a 75-kVA transformer feeding a 225-amp panel for that area of the building.

Each panel shall be supplied with an integral surge protective device with its dedicated circuit breaker. SPD's shall be integral with panel.

Contractor shall be responsible for providing Coordination Study and Arc Flash Study and shall set all overcurrent devices and affix proper PPE labels on all gear.

All service conductors and feeders shall be copper.

Receptacles for freestanding office-area cubicles shall require floor boxes or core drills with fire rated poke-through devices suitable for power, multiple IT cables and AV requirements. Coordinate cubicle connections with installers. Power poles will not be used.

Basis of design for electrical installation:

- All branch circuit wiring to be copper and be installed in metal raceways.
- All devices shall be heavy-duty, commercial-grade type.



- All emergency circuits for lighting shall be installed in separate raceway from normal power.
- All panelboards shall have separate neutral and ground busses, have copper bussing, and utilize bolt-on breakers. Basis of design to be Square D NF and NQ panelboards. Switchboards to be I-Line or QMB type.

### Emergency Power

Life safety and equipment power will be supplied by diesel generator to be located in utility yard which provide life safety and equipment power for the building. This will provide life safety branch to include emergency power to the elevator bank, egress lighting for the building, backup power to fire alarm, some IT equipment (as determined by owner), owner's security systems, and communications systems. Provide pads for all generator with seismic attachments.

The automatic transfer switch and associated branch panels shall be located in a separate room from the main electrical service as required by IBC.

Elevators shall be powered from the emergency distribution system as required by IBC. Each elevator in the common elevator shaft shall be powered from the emergency panelboard such that either may be used in the event of loss of power.

### Lighting

Illumination levels will be per the Illuminating Engineering Society Illumination Guidelines and recommendations. Lighting fixtures will be LED throughout.

Daylighting will be utilized as much as possible in many of the spaces, and it is anticipated that dimming systems responding to daylight illumination will be used to control artificial lighting in those spaces. Occupancy sensors and dual switching will be used for local control in most other spaces.

In conference rooms and offices with finished ceilings, it is anticipated that lighting generally will be provided by 2x4 LED-type troffers and recessed LED downlights. Classrooms and open office areas shall be furnished with linear LED pendants. See attached cut sheets for typical fixtures. Office lighting shall be consistent with Class A office space.

Emergency egress lighting will be provided, generally using emergency transfer devices within selected fixtures.

Site lighting is included for all parking areas with aesthetic lighting provided in high visibility areas. Provide allowance for bollards at main entry, ground mounted uplights at feature areas at front of building, and decorative wall sconces around perimeter of building and at all entrances.

All lighting will be controlled by low-voltage relay lighting control panels with low-voltage override switches on each floor and at main entry. Local control will be provided for all offices, workrooms, etc. utilizing occupancy sensors as is required for compliance with IECC. Conference rooms will be provided with 0-10 volt dimming controls and drivers in all fixtures.



### Telecommunications

IT Cabling is to be Category 6A and installed by Greenville Tech's preferred installer. Provide complete wiring system from jack to patch panel according to Greenville Tech's standards with 25 year warranty. Contractor shall coordinate with and provide all infrastructure, conduit requirements, and power for IT cabling installer.

Telecommunications conduit for telecommunications will be installed from outlets to accessible ceilings, with conduit cable trays. Cable tray shall be provided on each floor and shall extend down corridors to provide maximum coverage. Provide conduit sleeved access to data closets. Vertical access will be provided with minimum 3-4 inch conduit sleeves between data closets on each floor. Racks and terminations will be by the Owner's separate low voltage system contractor.

Telecommunication rooms will be located as required so that horizontal drops of data cables not to exceed 90 meters in length. Telecom rooms shall be a minimum of 10'x10' and shall be stacked vertically. There shall be two telecom panels per floor. The main distribution frame (MDF) shall be on the first floor and contain 200 square feet.

Underground conduit will be provided from the building for telephone service entrance. Provide additional conduit stub outs from building for future use.

Provide all infrastructure and power required for the telecommunication cabling installation.

### Fire Alarm System

An addressable, voice evacuation type, manual fire alarm system will be provided throughout the building. The installation will comply with IBC for building occupancy type B with devices located per NFPA 72. The system shall include manual pull stations, speakers, strobes, horn/speakers, smoke and/or heat detectors, flow and tamper switch monitoring for sprinkler system, and duct detectors in all HVAC units above 2000 CFM. All fire alarm cabling shall be installed in conduit and identified as fire alarm system raceway with red conduit. System shall have remote monitoring capabilities with all pieces, parts, and appurtenances as required for a complete and operational system. The system shall be monitored. Contractor shall coordinate installation and monitoring with the Owner.

Each floor of each building shall have its own loop for devices reporting on that floor. Provide power supplies as required on each floor. Power supplies and other panels shall be located in the telecom room.

Remote annunciators shall be located at the front entry lobby. Coordinate with Fire Marshall and provide all requirements.

Basis of design is Johnson Controls.

The fire alarm system installer shall coordinate with sprinkler installer, elevator installer, and security to ensure all interfaces and interlocks are installed properly.

Provide 24 hours operation on system batteries and submit battery calculations and shop drawings to local AHJ for approval before installing.



Provide a DAS radio amplifier system per IBC requirements. Include a testing agency to verify system needs and provide amplifiers, antennae, etc as required to provide adequate signal for the emergency responder radios at the required frequency.

#### **Security Systems**

Security system design shall be provided by Owner's separate installer and is not part of this scope of work.

Conduit for the security access and banking systems will be provided as part of this scope. Single gang backboxes for keypads will be provided at selected doors for use with door security with conduits stubbed up to accessible ceiling.

All raceways, conduit, and power systems for a complete and operational system is part of this scope.

#### **Audio Visual System**

Audio visual systems are to be provided by Owner's separate installer and is not part of this scope of work. All raceways, conduit, and power systems for a complete and operational system is part of this scope. Coordinate with installer as required.

#### **Code Blue Emergency Stations**

Two emergency call stations shall be provided in the parking area. Provide power and infrastructure to route signal as required. Provide mounting for all stations.

#### **Lightning Protection**

Provide lightning protection system for buildings compliant with UL and NFPA 780 with #3/0 counterpoise installed around perimeter and exothermically attached to every other column. Provide submittal with detailed design and device attachments details. Provide U.L. Master label certification.

SPACE REQUIREMENTS		NUMBER	NSF	TOTAL SF
<b>I. ACADEMIC ADVANCEMENT</b>				
A.	General Classrooms Note: general classrooms are shared with other departments, refer to <u>V. Commons Spaces</u>	-	-	-
B.	Coaching and Tutoring			
1.	Computer and math lab (combined) 24 benching stations to accommodate 2 people each Interior net: 20 SF per occupant = 40 SF Equipment: access to data and printers, rolling white boards, systems for online tutoring Open lab with sound control and isolation	20	40	800
2.	Conversation rooms One table and four chairs each Interior net: 20 SF per occupant = 80 Sound isolation Transparency Equipment: access to data, white boards	8	80	640
3.	Communications Recording *12 rooms required (two will have green screens) providing space for equipment and 4 students Interior net: 20 SF per occupant = 80 SF Production area located near faculty offices, administration and tutoring lab Used by students for presentation development including webinars Equipment: access to data, computers with webcams *NOTE: these spaces will be shared as part of the Conversation Rooms, Item B., 2.	2	80	160
4.	Director of Coaching and Tutoring	1	120	120
<b>Coaching and Tutoring Subtotal</b>				<b>1,720</b>



	SPACE REQUIREMENTS	NUMBER	NSF	TOTAL SF
C.	Path Center	1	400	400
	1. Recruiter meeting space for transfer students Locate next to Arts & Sciences DAC (see item 3 below) Open meeting area with five four-top tables Interior net: 20 SF per occupant = 400 SF Equipment: access to data, monitors, operable projection screen			
	2. Offices (Path Center) Coordinator	1	80	80
	Academic Advisors - cubicles	2	64	128
	3. Offices - Division Advising Center (DAC) Arts & Sciences DAC Office Two cubicles with waiting Health Sciences DAC office Two cubicles with waiting	1	300	300
<b>Path Center Subtotal</b>				<b>908</b>
D.	Offices - Academic Advancement			
	1. Dean's Office Office set up with table seating four	1	144	144
	2. Assistant Dean Office set up with table seating four	2	130	260
	3. Department Heads	2	120	240
	4. Academic Program Director (APD)	6	80	480
	5. Department administrative support Waiting area	1	150	150
	6. Conference Room Seating for 10 Shared with other departments	1	200	200
	7. Faculty offices (Transitions) Math = 8 ESL = 1 English = 5 Administrative support	13	80	1,040
		1	80	80

SPACE REQUIREMENTS	NUMBER	NSF	TOTAL SF
8. Faculty offices (Academic Connections - COL)			
Offices	3	80	240
COL / Advisor office	7	80	560
PEER Leaders' cubicles and work room	6	60	360
Administrative support (shared with Transitions)			
9. Workroom	1	200	200
<b>Office Space Subtotal</b>			<b>3,954</b>
<b>Academic Advancement Spaces Subtotal</b>			<b>6,582</b>

## II. ARTS & SCIENCES

### A. Classrooms / Labs

#### 1. Physical Sciences

Each lab accommodates 24 students plus faculty

Interior net: 50 SF per occupant = 1,250

Chemistry with exhaust hoods	3	1,250	3,750
Physics	2	1,250	2,500
Biology	15	1,250	18,750

Utilities:

water - all labs

natural gas - chemistry and biology

Six exhaust ventilation hoods (chemistry)

Equipment: access to data, A/V, teaching podium/demonstration, wall mounted monitors, miscellaneous lab equipment, white boards, acid resistive countertops

2. Lab prep and storage rooms	10	260	2,600
One between two labs			
Chemical storage			
Chemical / biological waste storage - access to pick up for disposal			
3. General Classrooms	-	-	-
Note: general classrooms are shared with other departments, refer to <u>V. Commons Spaces</u>			

<b>Classrooms/Labs Subtotal</b>			<b>27,600</b>
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	<b>SPACE REQUIREMENTS</b>	<b>NUMBER</b>	<b>NSF</b>	<b>TOTAL SF</b>
B.	Music Rehearsal			
1.	Rehearsal space for vocal and instrumental 50 musicians Interior net: 50 SF per occupant = 2,500 Acoustical treatment Equipment: piano, white boards	1	1,500	1,500
2.	Instrument storage Locking cabinets	1	100	100
3.	Storage - general	1	100	100
4.	Storage - risers, chairs and music stands	1	300	300
<b>Music Rehearsal Subtotal</b>				<b>2,000</b>
C.	Black Box Theater			
1.	Space to accommodate 80 occupants Interior net: 50 SF per occupant = 4,000 Equipment: sound system, tension grid theatrical curtains and lighting system Flexible seating arrangements High ceiling Sound isolation Acoustical treatment Locate near lobby and provide access for deliveries	1	3,000	3,000
2.	Green room Toilet, changing area Sound isolation	1	420	420
3.	Storage	1	400	400
4.	Sound Booth Equipment: Sound and lighting controls, recording equipment Sound isolation	1	150	150
5.	Riser and chair storage	1	250	250
<b>Black Box Theater Subtotal</b>				<b>4,220</b>

	SPACE REQUIREMENTS	NUMBER	NSF	TOTAL SF
D.	Offices - Arts & Sciences			
1.	Dean's Office Office set up with table seating four	1	150	150
2.	Assistant Dean Office set up with table seating four	2	130	260
3.	Department Heads Biological Sciences English Honors Humanities Mathematics Physical Sciences Social and Behavioral Sciences Communications / Theater	8	120	960
4.	Department administrative support Waiting area	1	400	400
5.	Faculty offices			
	Biological Sciences	20	80	1,600
	Lab Techs	2	64	128
	English	17	80	1,360
	Admin Assistant - shared with Communications	1	80	80
	Honors	1	80	80
	Admin Assistant	1	80	80
	Humanities	12	80	960
	Admin Assistant - shared with Soc. Behavioral	1	80	80
	Mathematics	15	80	1,200
	Admin Assistant	1	80	80
	Physical Sciences	9	80	720
	Admin Assistant	1	80	80
	Social and Behavioral Sciences	11	80	880
	Admin Assistant shared with Humanities			
	Communications / Theater	6	80	480
	Admin Assistant shared with English			
6.	Adjunct Faculty - cubicles	10	64	640
7.	Conference	-	-	-
	Seating for 10			
	Shared with other departments			



SPACE REQUIREMENTS	NUMBER	NSF	TOTAL SF
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Offices - Arts & Science Subtotal			10,218
Arts & Sciences Subtotal			44,038

### III. HEALTH SCIENCE DIVISION

A.	General Classrooms Note: general classrooms are shared with other departments, refer to <u>V. Commons Spaces</u>	3	-	-
B.	Labs and storage			
1.	Energized X-ray Rooms Lead walls Equipment: x-ray machine Patient access from first floor	3	300	900
2.	X-ray teaching area collaborative area Practice x-ray table Equipment: locked storage cabinets, white boards	1	250	250
3.	X-ray storage	1	150	150
4.	Ultrasound - three stations Patient access from first floor Gurneys, privacy curtains, guest chair Equipment: portable ultrasound machine	1	600	600
5.	Linen storage	1	50	50
6.	General storage Patient care supplies	1	100	100
B.	Health Sciences study lounge Tables, chairs, casual seating, white boards	1	300	300
C.	Laundry Access to linen storage	1	64	64
D.	Records Storage Secure area for student and accreditation records	1	100	100

<b>Health Science Labs/storage/study storage/study lounge/laundry/records storage</b>			<b>2,514</b>
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	SPACE REQUIREMENTS	NUMBER	NSF	TOTAL SF
E	Offices			
	1. Dean's Office Office set up with table seating four	1	150	150
	2. Admin to the Dean Workstation, waiting area	1	300	300
	3. Assistant Dean Office set up with table seating four	3	130	390
	4. Department Head - Medical Imaging	1	120	120
	5. Academic Program Director (APD)	3	80	240
	6. Faculty	6	80	480
	7. Administrative support - Medical Imaging Patient check-in	1	64	64
	8. Waiting area at patient check-in Seating for five Locate near private toilet and ultra sound lab	1	150	150
	9. Private toilet Locate near patient check-in waiting area	1	60	60
	10. Conference Seating for 10 Shared with other departments	-	-	-
	11. Workroom	1	120	120
<b>Health Science Offices</b>				<b>2,074</b>
<b>Health Sciences Subtotal</b>				<b>4,588</b>

SPACE REQUIREMENTS	NUMBER	NSF	TOTAL SF
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**IV. EDCT (Economic Development & Corporate Training)**

A.	Personal & Professional Enrichment (PPE)			
1.	Classrooms for evening education Share previously programmed classrooms	4	-	-
2.	Storage	1	100	100
B.	Offices - PPE			
1.	Associate Vice President Office set up with table seating four	1	144	144
2.	Department Head	1	120	120
3.	Academic Program Director (APD)	2	80	160
4.	Administrative support Waiting area	1	300	300
5.	Conference Seating for 10 Shared with other departments	-	-	-

<b>EDCT Subtotal</b>			<b>824</b>
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**V. COMMON SPACES**

A.	Classrooms / Labs			
1.	Standard size accommodating 30 students + faculty Interior net: 20 SF per occupant = 600 Distance Learning (DL) = 5 classrooms of the total Equipment: access to data, A/V, teaching podium, wall mounted monitors, white boards	36	600	21,600
2.	Expanded size accommodating 40 students + faculty Interior net: 20 SF per occupant = 800 Equipment: access to data, A/V, teaching podium, wall mounted monitors	3	800	2,400
3.	Computer labs accommodating 28 students + faculty Interior net: 25 SF per occupant = 700 Equipment: access to data, A/V, teaching podium,	4	700	2,800

SPACE REQUIREMENTS		NUMBER	NSF	TOTAL SF
	wall mounted monitors, student computer stations			
4.	Storage Various locations	10	60	600
<b>Common Spaces Subtotal</b>				<b>27,400</b>
B.	Multipurpose Room			
1.	Event Space Seating for 100 in various configurations including lecture, training and banquet styles Requires sound isolation Interior net: 20 SF per occupant = 2,000	1	1,800	1,800
2.	Presentation area Equipment: A/V, wall mounted monitors, sound system, operable projection screen Flexible location in space	1	300	300
3.	Pre-function area Access to Main Lobby	1	300	300
4.	Table and chair storage	1	300	300
5.	Catering Access for deliveries Prep area and storage Equipment: warming cabinets	1	250	250
<b>Multipurpose Room Subtotal</b>				<b>2,950</b>
C.	Adjunct Faculty Ten cubicle workstations in open office (shared between departments) Four work tables seating four each	8	64	512
		4	80	320
D.	Student break areas One per floor Near collaborative areas	3	400	1,200
E.	Faculty break areas One per floor Near collaborative areas	3	300	900



	SPACE REQUIREMENTS	NUMBER	NSF	TOTAL SF
F.	Mail delivery areas One per department (four)	3	10	30
G.	Micro Market Access to deliveries Centrally located	1	300	300
H.	Student collaborative / lounge areas One per floor Access to printers	3	300	900
E.	Entry Lobby with vestibule	1	750	750
F.	Toilet rooms, lavatory rooms, lactation rooms, janitorial Two sets per floor	6	600	3,600
G.	Conversation Rooms Various locations throughout the building	10	80	800
H.	Storage Located two per floor near office areas	6	100	600
I.	Vertical circulation Elevator, egress stairs, monumental stair			2,000
<b>Common Spaces Subtotal</b>				<b>42,262</b>

**VI. MECHANICAL/ELECTRICAL/INFORMATION TECHNOLOGY**

A.	Mechanical Rooms (Air Handling Units) Two per floor Must be stacked	6	750	4,500
B.	Mechanical Room (Pumps) Ground floor	1	200	200
C.	Telecom MDF Ground floor	1	200	200
D.	Telecom IDF Second and Third Floors	2	200	400
E.	Electrical Rooms Four per floor	12	48	576

SPACE REQUIREMENTS	NUMBER	NSF	TOTAL SF
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<b>Common Spaces Subtotal</b>			<b>5,876</b>
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<b>TOTAL NET AREA</b>			<b>104,170</b>
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This area represents the actual usable programmed space for the functional areas identified above.

<b>TOTAL NEW GROSS AREA</b>	<b>1.20</b>	<b>104,170</b>	<b>125,004</b>
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This total area represents the entire projected building footprint of all enclosed areas. This includes programmed net area plus a 1.20 net to gross (80/20) multiplier used to estimate space for walls and circulation areas.

# Building Concept



## Design Concept

Greenville Technical College is an institution striving to provide “flexible career and educational opportunities of the highest quality and value” (Greenville Tech Vision Statement). The students, faculty, and staff deserve a building that strives to meet this vision.

The design team is proposing a building design that will continue to bring the campus the highest value for the future.

The building establishes itself as a jewel. As the center of the new campus green, the Arts and Health Sciences Building is a connecting point on campus and a center for students, faculty, and administration to come together for both learning and performing arts. The front open-glass facade invites people in and creates an inspiring, visually active introduction. The use of high-performance materials, systems, and design emphasizes the forward thinking, forward motion of Greenville Technical College.

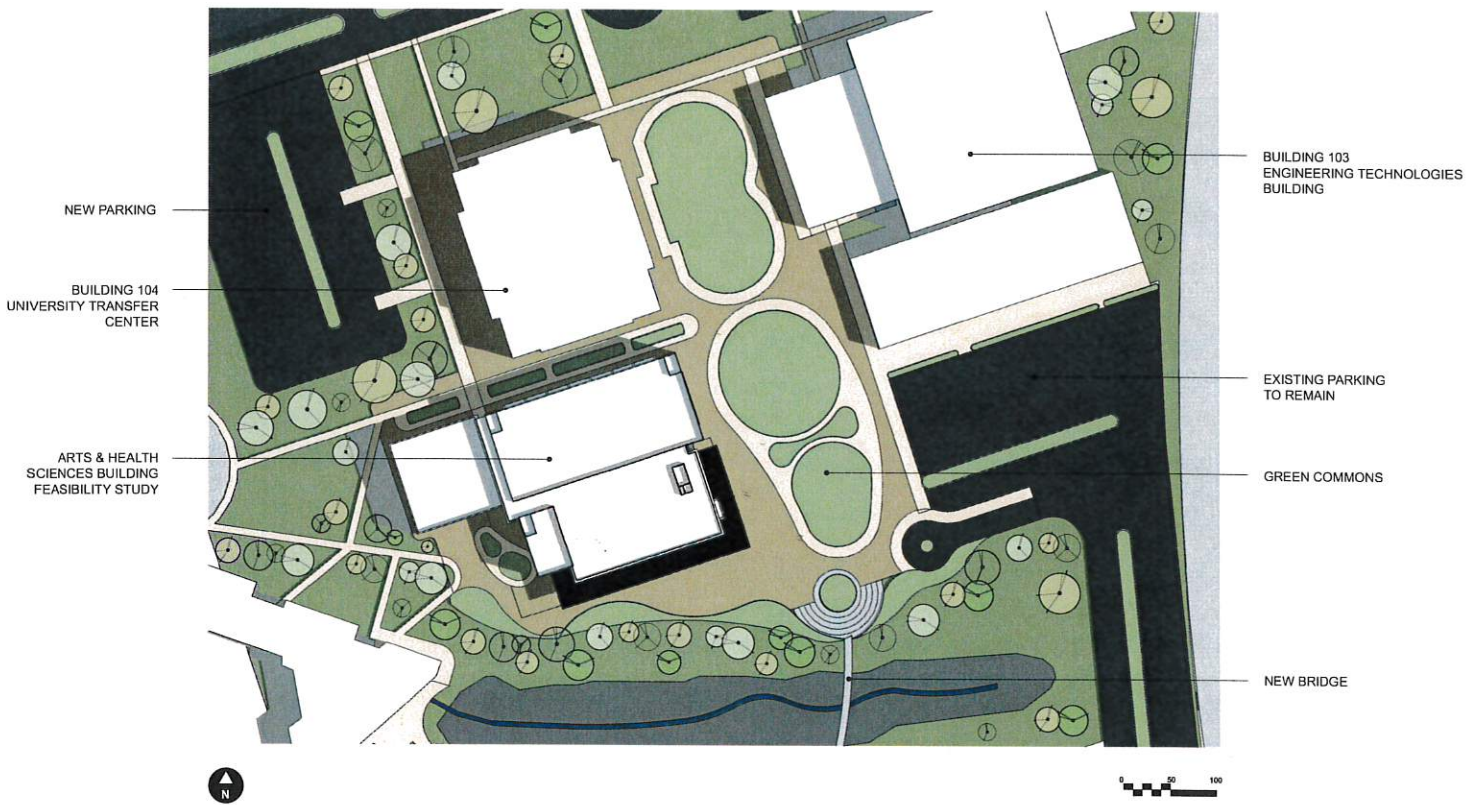
The contrasting materials of the building itself communicate the activities happening within. The labs, which necessitate a more focused environment, are wrapped with a more solid, brick exterior. The classrooms, which facilitate student and faculty interaction and group meeting spaces, are enclosed in lightweight glass. Placed right on the campus green, indoor/outdoor spaces are created for students to gather, study, and lounge.



GREENVILLE TECH  
Arts & Health Sciences Building Feasibility Study  
Site Plan - Existing











- ACADEMIC ADVANCEMENT
- ARTS & SCIENCES
- HEALTH SCIENCE DIVISON
- ECONOMIC DEVELOPMENT & CORPORATE TRAINING
- COMMON SPACES
- CIRCULATION

GREENVILLE TECH  
Arts & Health Sciences Building Feasibility Study  
Floor Plan - Level 1







- ACADEMIC ADVANCEMENT
- ARTS & SCIENCES
- HEALTH SCIENCE DIVISION
- ECONOMIC DEVELOPMENT & CORPORATE TRAINING
- COMMON SPACES
- CIRCULATION

GREENVILLE TECH  
 Arts & Health Sciences Building Feasibility Study  
 Floor Plan - Level 2







- ACADEMIC ADVANCEMENT
- ARTS & SCIENCES
- HEALTH SCIENCE DIVISON
- ECONOMIC DEVELOPMENT & CORPORATE TRAINING
- COMMON SPACES
- CIRCULATION

GREENVILLE TECH  
 Arts & Health Sciences Building Feasibility Study  
 Floor Plan - Level 3





GREENVILLE TECH  
Arts & Health Sciences Building Feasibility Study  
Front Perspective







GREENVILLE TECH  
Arts & Health Sciences Building Feasibility Study  
Back Perspective





GREENVILLE TECH  
Arts & Health Sciences Building Feasibility Study  
Side Perspective





# Conceptual Estimate - Order of Magnitude



## Introduction

Aiken Cost Consultants and the design team reviewed the program of spaces, narratives, and the conceptual drawings to develop an order of magnitude conceptual estimate. This conceptual estimate establishes the probable costs to construct a building of this size on the Barton Campus of Greenville Technical College within 18 months. Escalation factors are offered if the building is constructed within the next 3 to 5 five years. Estimating information is subject to many outside factors which may cause the conceptual estimate to change either positively or negatively.

In general, it is estimated the cost per square foot would have a budget estimate of \$359 excluding site development costs and related soft costs. A total project conceptual budget estimate which assumes construction within 18 months and includes construction costs, site development, professional fees, testing, FF&E, and contingency is provided on the next page.

Statement of Probable Cost



<b>CONSTRUCTION AND DEVELOPMENT COSTS</b>					
A.	Building Cost of Construction (order of magnitude)	Gross SF			
	1. Academic Building (assumed three story)	125,004 SF	\$/SF	\$359.00	\$ 44,876,436
B.	Site Development Cost	3.0 Acres	\$/Acre	\$500,996	\$ 1,502,988
	<i>includes site demolition and site utility work no parking areas included</i>				
<b>C.</b>	<b>Construction Cost Subtotal</b>	<b>(A thru B)</b>		<b>\$</b>	<b>46,379,424</b>
D.	Construction Contingency		% of D	5.0%	\$ 2,318,971
E.	Construction Cost Escalation (One Year)		% of D	10.0%	\$ 4,637,942
F.	Owner Project Reserve/Contingency		% of D	5.0%	\$ 2,318,971
<b>G.</b>	<b>Contingency Subtotal</b>	<b>(D thru F)</b>		<b>\$</b>	<b>9,275,885</b>
H.	Furniture, fixtures and equipment (FFE)		% cost of construction - C	5%	\$ 2,318,971
	<i>includes laboratory equipment and furnishings</i>				
I.	Movable Equipment		% of A1	2%	\$ 897,529
	<i>Owner Provided Furnishings and Equipment</i>				
J.	Telecommunications/Data/Security		\$/SF of A1	\$8	\$ 1,000,032
K.	Architecture/Engineering Fees (Basic services)		% cost of construction - D	8%	\$ 3,710,354
L.	Additional services: civil engineering, landscape, interior design, furniture selection, laboratory consultant, sustainability consultant, testing services		% cost of construction - D	5%	\$ 2,318,971
<b>M.</b>	<b>Additional Owner Items Subtotal</b>	<b>(H thru L)</b>		<b>\$</b>	<b>10,245,857</b>
	<b>TOTAL ESTIMATED PROJECT BUDGET</b>	<b>(C + G + M)</b>		<b>\$</b>	<b>65,901,166</b>

**NOTES:**

- Budget costs above do not include site surveying and testing fees, land acquisition costs or moving costs, tap fees, or construction materials testing fees.
- Per Acreage costs have not accounted for unsuitable soils including rock, contaminated or wet soils.
- Budget above assumes that construction is completed within the next 12 months. For each year beyond 12 months add 10% Construction Cost Escalation for Item F above.



**MASTER SUMMARY**  
**Feasibility Study**  
 For  
**Arts & Health Sciences Building**  
 Greenville Technical College  
 Greenville, SC

**Architect:**  
 DP3 Architects, Ltd.  
 211 East Broad St  
 Greenville, SC 29601

**Cost Estimator:**  
 Aiken Cost Consultants  
 19 West Stone Avenue  
 Greenville, SC 29609

	Total	
	Cost	%
<b>Arts &amp; Health Sciences Building</b> 125,004 SF @ \$359 per SF	44,882,451	96.8%
<b>Sitework</b>	1,502,988	3.2%
<b>Total Probable Base Bid</b>	<b>\$46,385,439</b>	<b>100.0%</b>
Construction Phase Contingency	2,319,272	5.0%
<b>Total Construction Cost (TCC)</b>	<b>\$48,704,711</b>	<b>105.0%</b>

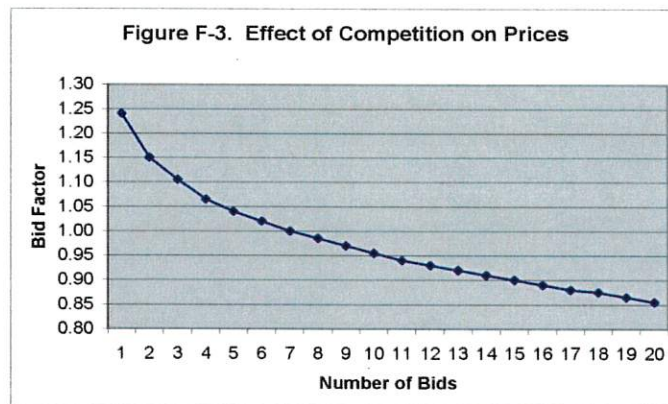
## Project Notes / General Comments

This estimate is based upon Feasibility Study documents dated August 2019.

This estimate has been prepared in accordance with generally accepted estimating practices and principles. Aiken Cost Consultants' staff is available to discuss our methods, pricing, assumptions, or estimating philosophy with any interested party. Please contact us by phone at (864) 232-9342, by fax at (864) 233-2573, or by e-mail at Brad@AikenCost.com.

Aiken Cost Consultants estimates are intended to be used as a professional opinion of the probable cost of construction, based on our understanding of the design at the time the estimate was prepared. We have no control over General or Subcontractor overhead and profit percentages, bidding climates, schedules, contractor's methods of determining prices, continuing design modifications or addenda, etc., therefore, we cannot guarantee that proposals, bids, or actual construction costs will be within a certain range of this, or subsequent, cost estimates.

When preparing each cost estimate submittal Aiken Cost Consultants reviews current market conditions. It is our opinion that current construction market may be less than competitive at both the General Contractor and Sub Contractor levels. One of several resources the Owner should consider when bidding a project is the "Effect of Competition on Prices" chart developed by the U.S. Army Corp of Engineers. Additional project specific factors to consider (when applicable) are; anticipated mid-point of construction, difficult conditions, phasing, Liquidated Damages, limited or set-aside contracting requirements, etc. These multiple factors should also be considered whenever the project is delayed and/or market conditions change significantly.







BUILDING SUMMARY  
**Feasibility Study**  
 FOR  
**Arts & Health Sciences Building**  
**Greenville Technical College**  
 Greenville, SC

Architect:  
**DP3 Architects, Ltd.**  
 211 East Broad St  
 Greenville, SC 29601

Cost Estimator:  
**Aiken Cost Consultants**  
 19 West Stone Avenue  
 Greenville, SC 29609

Project Data		Area Calculation	
Project Code:	DP337	First floor	Adjusted Gross 49900 SF
Mid Point of Construction:	Jan 2021	Second floor	35704 SF
Owners Budget:	Unknown	Third Floor	39400 SF
ACC Last Estimate:	NA	Total Bldg Area =	125004 SF

Project	Arts & Health Sciences Building	
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LEVEL 2 GROUP ELEMENTS		GFA -->	125,004	SF
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Level 3 Elements	Element				Cost per unit GFA	%
	Quantity	Unit	Rate (\$)	Cost		
<b>Arts &amp; Health Sciences Building</b>				<b>\$44,882,451</b>		<b>100%</b>
A10 Foundations	49900	SF	9.66	482,034	3.86	1.1%
A15 Slab On Grade	49900	SF	12.09	603,176	4.83	1.3%
B10 Structure	75104	SF	57.19	4,295,058	34.36	9.6%
B15 Roof Structure	49900	SF	23.49	1,172,082	9.38	2.6%
B20 Exterior Walls	46760	SF	44.17	2,065,407	16.52	4.6%
B22 Exterior Windows	28490	SF	145	4,123,991	32.99	9.2%
B23 Exterior Doors	7	EA	7,331	51,320	0.41	0.1%
B30 Roofing & Canopy	49900	SF	32.10	1,601,764	12.81	3.6%
C10 Interior Partitions & Windows	141400	SF	10.25	1,449,619	11.60	3.2%
C12 Interior Doors	146	EA	2,795	408,065	3.26	0.9%
C13 Interior Specialties	125004	SF	8.80	1,100,208	8.80	2.5%
C20 Staircases	5	EA	99,433	497,165	3.98	1.1%
C30 Finishes	125004	SF	18.50	2,312,865	18.50	5.2%
D10 Elevators	6	STP	47,049	282,296	2.26	0.6%
D20 Plumbing	125004	SF	16.60	2,074,685	16.60	4.6%
D30 HVAC	125004	SF	70.54	8,818,180	70.54	19.6%
D40 Fire Protection	125004	SF	5.58	697,287	5.58	1.6%
D50 Electrical Service & Distribution	125004	SF	10.72	1,340,235	10.72	3.0%
D52 Lighting & Branch Wiring	125004	SF	41.34	5,168,049	41.34	11.5%
D53 Communication & Branch Wiring	125004	SF	10.08	1,260,441	10.08	2.8%
D54 Special Electrical Systems	125004	SF	1.57	196,216	1.57	0.4%
E10 Lab Equipment & Lab Casework	125004	SF	28.20	3,525,130	28.20	7.9%
E20 Casework	125004	SF	10.86	1,357,178	10.86	3.0%

Sitework	Quantity	Unit	Rate (\$)	Cost
G10 SITE PREPARATION	14520	SY	26.26	381,310
G20 SITE IMPROVEMENTS	14520	SY	26.87	390,137
G30 SITE MECHANICAL UTILITIES	1	AL	450,000	450,000
G40 SITE ELECTRICAL UTILITIES	1	LS	281,541	281,541

**Project Cost including GC Field Overhead**

**\$46,385,439**



Project	Arts & Health Sciences Building			
LEVEL 2 GROUP ELEMENTS			GFA -->	125,004 SF
Level 3 Elements		Element	Cost per	%

<b>The above unit prices INCLUDE the following:</b>		
Fees & Permits	General Contractor Home Office Expense	General Contractor's Profit
Bond	Escalation to Mid Point of Construction	Sub-Contractor OH&P
State Sales Tax	Non-Competitive Market	
Design Contingency		

<b>The following items are EXCLUDED from this estimate:</b>		
Design Fees		
Inhouse Costs		
Finance Costs		



DP337	<b>Arts &amp; Health Sciences Building</b>
Feasibility Study	
<b>DESCRIPTION</b>	
<b>Arts &amp; Health Sciences Building</b>	
<b>A10 Foundations</b>	
<b>A1011 Wall Foundations</b>	Strip Footing
<b>A1012 Column Footings</b>	Column Footing
<b>A1015 Moisture Protection</b>	Vapor Barrier Misc.
<b>A15 Slab On Grade</b>	
<b>A1031 Standard Slab On Grade</b>	Standard SOG, WWF, VB, Gravel Base, Form, Finish
<b>A1036 Slab Treatments</b>	Termite Pretreatment, Slabs & Walls
<b>B10 Structure</b>	
	Floor Structure
<b>B15 Roof Structure</b>	
<b>Steel Construction</b>	Roof Structure
<b>B20 Exterior Walls</b>	
<b>Brick Face</b>	Exterior Walls
<b>Scaffolding</b>	Rent scaffolding, erect and dismantle
<b>B22 Exterior Windows</b>	
<b>B2022 Curtain Walls</b>	Curtain Wall
<b>B2023 Storefronts</b>	

DP337	<b>Arts &amp; Health Sciences Building</b>
Feasibility Study	
<b>DESCRIPTION</b>	
Fixed Aluminum Storefront	
<b>B2024 Sunshades</b>	Sunshades, vertical
<b>B23 Exterior Doors</b>	
<b>B2031 Glazed Doors &amp; Entrances</b>	Single alum. / full glass door w/ alum. frame/panic hdw Double alum./ full glass door w/ alum. frame/panic hdw
<b>B2032 Solid Exterior Doors</b>	Single HM door w/hm. frame, paint, & panic hdw.
<b>B30 Roofing &amp; Canopy</b>	
Roofing	
Membrane Roofing	
Rigid Insulation	
Canopy	
Entry Canopy	
<b>C10 Interior Partitions &amp; Windows</b>	
<b>C1011 Fixed Partitions</b>	8" Concrete Block 5/8" Gyp Brd-2 sides on 3 5/8" met studs w/sound batt
<b>C1017 Interior Windows &amp; Storefronts</b>	Interior Storefront
<b>C12 Interior Doors</b>	
<b>C1021 Interior Doors</b>	Single SCW door w/ HM frame, paint, & hdw
<b>C13 Interior Specialties</b>	
<b>C1028 Toilet Accessories</b>	Mop & Broom Holder Mirror w/ SS Frame Toilet Tissue Dispenser Semi Recessed Towel Dispenser w/waste recept Soap Dispenser



DP337	<b>Arts &amp; Health Sciences Building</b>
Feasibility Study	
<b>DESCRIPTION</b>	
<p>Sanitary Napkin Disposal (Surface Mounted)</p> <p>Sanitary Napkin Dispenser</p> <p>Electric Hand Dryer</p> <p>Stainless Steel Grab Bars, 18"</p> <p>Stainless Steel Grab Bars, 36"</p> <p>Stainless Steel Grab Bars, 42"</p> <p>Robe or Coat Hook</p> <p><b>C1032 Toilet Partitions &amp; Stalls</b></p> <p>Toilet partition</p> <p>Urinal partition</p> <p><b>C1034 Misc. Specialties</b></p> <p>Signs, wall &amp; door</p> <p>Visual Display Boards</p> <p>Projection Screen, wall or ceiling, manually operated</p> <p>Fire extinguisher w/ alum door &amp; frame</p> <p>Misc. Specialties</p>	
<b>C20 Staircases</b>	
<p><b>C2012 Prefabricated Metal Stair Assemblies</b></p> <p>Metal Pan,Cement Filled Stair,Rail,Landings</p> <p><b>C2013 Railings</b></p> <p>Glass Balcony Railing</p> <p><b>C2021 Stair, Tread, and Landing Finishes</b></p> <p>Rubber Stair Treads</p> <p>Rubber Stair Risers</p>	
<b>C30 Finishes</b>	
<p><b>C3011 Wall Finishes</b></p> <p>Paint (low-VOC) drywall, primer &amp; 2 coats- spray</p> <p>Paint (low-VOC) masonry or conc., primer &amp; 2 coats- spray</p> <p>Ceramic Tile Walls, thin set w/ low VOC adhesive</p> <p><b>C3022 Flooring</b></p> <p>Vinyl Composition Tile w/ low VOC adhesive</p> <p>Chemical Resistant Flooring</p> <p>LVT w/ low VOC adhesive</p> <p><b>C3023 Carpeting</b></p> <p>Carpet Tile, Cushion Back w/ low VOC adhesive</p> <p><b>C3024 Tile</b></p>	

DP337	<b>Arts &amp; Health Sciences Building</b>
Feasibility Study	
<b>DESCRIPTION</b>	
<p>Ceramic Tile Floors, low VOC adh</p> <p><b>C3025 Bases, Curbs, &amp; Trim</b>            Rubber Base, 4", Cove w/ low VOC adhesive            Ceramic Tile , Cove Base, 6", low VOC adh</p> <p><b>C3032 Suspended Ceilings</b>            ACT (Seismic) 24"X 24"</p> <p><b>C3033 Ceiling Insulation</b>            Batt Insulation</p>	
<b>D10 Elevators</b>	
<p><b>Elevator</b>            Hydraulic Passenger Elev,3 Stops</p>	
<b>D20 Plumbing</b>	
<p>Plumbing System            Plumbing - additional for Biology Labs</p>	
<b>D30 HVAC</b>	
<p>HVAC System            HVAC System - additional for Biology Labs</p>	
<b>D40 Fire Protection</b>	
<p><b>Wet Pipe System</b>            Wet Pipe Sprinkler System, Lt. Haz. (1st Flr)            Wet Pipe Sprinkler System, Lt. Haz. (Above 1st Flr)</p>	
<b>D50 Electrical Service &amp; Distribution</b>	
<p>Service &amp; Distribution            Service &amp; Distribution - additional for Biology Labs</p>	
<b>D52 Lighting &amp; Branch Wiring</b>	
<p>Lighting &amp; Branch Wiring            Lighting &amp; Branch Wiring - additional for Biology Labs</p>	
<b>D53 Communication &amp; Branch Wiring</b>	



DP337	<b>Arts &amp; Health Sciences Building</b>
Feasibility Study	
<b>DESCRIPTION</b>	
Communication, Fire Alarm, & Security Systems	
<b>D54 Special Electrical Systems</b>	
Grounding & Lightning Protection System	
<b>E10 Lab Equipment &amp; Lab Casework</b>	
Lab Casework Lab Equipment	
<b>E20 Casework</b>	
General Casework Bathroom Counters	
<b>Sitework</b>	
<b>G10 SITE PREPARATION</b>	
<b>G1020 Site Demolition</b>	
Site Demolition Misc. Utility Demo	
<b>G1030 Site Earthwork</b>	
Site Grading Silt Fence Fine Grading	
<b>G20 SITE IMPROVEMENTS</b>	
<b>G2030 Pedestrian Paving</b>	
Concrete Sidewalk	
<b>G2040 Site Improvements</b>	
Site Improvements	
<b>G2050 Landscaping</b>	
Landscaping	
<b>G30 SITE MECHANICAL UTILITIES</b>	
<b>G3010 Water Supply</b>	



DP337 <b>Arts &amp; Health Sciences Building</b>	
Feasibility Study <b>DESCRIPTION</b>	
Water Supply <b>G3020 Sanitary Sewer</b> Sanitary Sewer Supply <b>G3030 Storm Sewer</b> Storm Water Supply	
<b>G40 SITE ELECTRICAL UTILITIES</b>  <b>G4012 Secondary Electrical Service</b> Transformer pad (vault) Underground service, 3000 amp, concrete encased Trenching, 2'x4', backfill, compaction <b>G4020 Site Lighting</b> Site Lighting <b>G4031 Communications Service - Raceway Only</b> 4" PVC Sch. 40 conduit 4" PVC elbow 4" PVC Sch. 40 coupling 4" PVC Sch. 40 bell end Chain Trenching, 8"x48", backfill	
<b>G90 OTHER SITE CONSTRUCTION</b> None In This Contract	
<b>PROJECT SUBTOTAL =====&gt;</b>	



# Recommendations

The design team and Greenville Technical College leadership worked together to carefully review the current and projected needs of Academic Advancement, Arts & Sciences and the Health Science Division. Based on the objectives of the 2012 Academic Master Plan, the recommendation of this feasibility study is to secure funding to begin the formal process to develop this project.

