THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER™

GROSS ANATOMY LABORATORY RENOVATION PROGRAM

SBC NO. 540/013-02-2017

Issued July 30, 2018

1.0 - EXECUTIVE SUMMARY

A. EXECUTIVE SUMMARY

This Program statement establishes the design requirements and preliminary budget for the Gross Anatomy Laboratory (GAL) renovation at the University of Tennessee Health Science Center (UTHSC) in Memphis, Tennessee.

In collaboration with the UTHSC planning team, this document defines the design criteria, confirms Concept Test Fit diagrams and establishes the Preliminary Estimate of Construction Cost and a Total Project Budget for the proposed new GAL. A building assessment of the General Education Building (GEB) and test fits are also included to evaluate the impact and benefits of this location for the proposed GAL renovation.

The purpose and use of the Program Statement is to:

- Establish the project Vision and Priority Goals for success
- Define the space requirements both in general and in detail to meet the needs as defined by the UTHSC's Planning Team
- Initiate the procurement of design services; providing the design team, users and management with a document summarizing key functional, operational and spatial requirements for the project in sufficient detail to initiate design work
- Provide project approval and funding authorities with information on which to base capital and operating requirements

Project Understanding

All components of the current GAL located on the first floor of Wittenborg (1926) and Link (1990) buildings will be relocated to the General Education Building (GEB).

Based on the Program requirements, the project will include 24,460 programed square feet including the following major components:

Project Component	**Net Square Feet**
Gross Anatomy Labs, Large and Flex Labs	12,840
Lab Support	5,890
Office / Student / Public	3,430
Support	2,300
Program Total	24,460

Project Goals

The overall goal for the project is to create a state-of-the-art Gross Anatomy Space for the study of human anatomy by students. The renovation of the GEB space will provide needed flexibility, address changes in how gross anatomy is taught and integrate technology into the pedagogy.

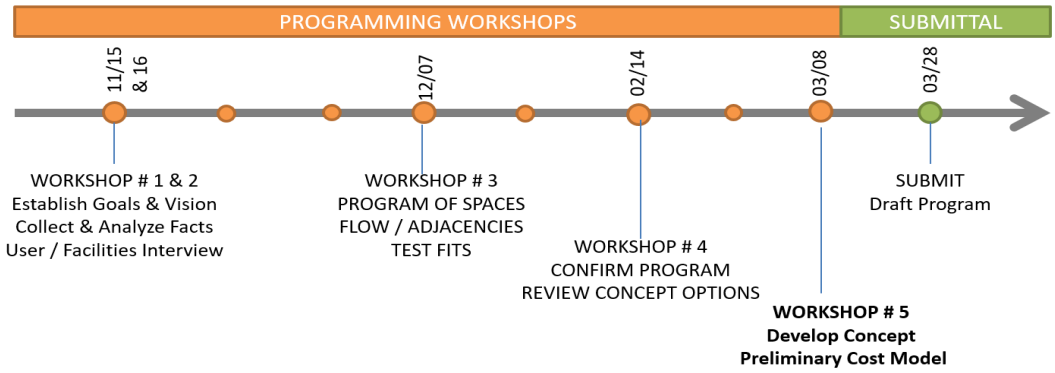
During the Kick-Off Work Session UTHSC's Planning Team identified their Vision and Goals for the project. The following is a summary of these priority goals:

- **Capacity:** Accommodate 250 students in the main GAL
- **Flexibility:** Provide a GAL that can be subdivided and create new smaller Flex Labs
- **Security:** Provided for student safety, control during exams and donor privacy. Additionally secured areas have been developed to place support spaces with in a secured areas and away from public corridors
- **Technology Integration:** Flexible technology infrastructure to respond to changing technology and future teaching pedagogy
- **Human Factor:** Create an positive environment to support recruitment, retention and well-being of students and faculty
- **Continue Operations:** Existing GAL must continue operations throughout renovation and construction due to class schedules limiting time when labs could be offline

Programming Process and Key Outcomes

During the Programming Phase, the Project Planning Team (PPT) consisting of HOK designers and the UTHSC Planning Team completed the following items:

- Conducted 5 Work Sessions to define the project Vision and Goals.
- Reviewed in detail space and design criteria for the GAL renovation.
- Reviewed benchmark facilities, including touring of the Augusta University Gross Anatomy Lab to identify project features that apply to the GAL renovation.
- Assessed existing buildings to determine the best fit for the renovation; assessments were conducted initially for the Johnson, Link and Wittenborg Buildings. Based on space constraints and logistic challenges, the GEB Building was considered, assessed and evaluated to provide a renovated laboratory space for the GAL and support functions.
- Developed Test Fit Concepts at the Basement and Level 3 of the GEB for review and evaluation by the UTHSC Planning Team.
- Conducted a Code Study of the proposed Test Fit to determine requirements to be considered during future design phases of the project.
- Prepared a Preliminary Estimate of Construction based on design criteria established by the Program and the selected Test Fit Concept.
- Coordinated Construction and other project related cost to develop the Total Project Budget.



Cost Estimate

Based on the program requirements and existing conditions in the GEB, a Preliminary Estimate of Construction was developed. In addition to the Estimate of Construction, the Programming and Planning Team developed an estimate and budget for all project costs. This will establish the Total Project Budget going forward into the funding process. The total project budget is $15.2 million. This includes construction and FFE required for project. Further detail is providing in the following section.

Johnson Building

Wittenborg Building

Link Building

General Education Building

B. INTRODUCTION / PROJECT OVERVIEW

The University of Tennessee Health Science Center commissioned HOK to provide a Program Statement, Facility Assessment and Test Fit for the GAL. This report documents the results of the study; including defining the project goals, functions and activities to be accommodated, current and future space needs to meet the functional; requirements, building system performance criteria, assessment of the proposed facility, including a test fit to meet space requirements. Also included, and based on the programming criteria and Test Fit Concept, is a Preliminary Estimate of Construction Cost and development of additional Project Cost to determine the Total Project Budget.

The renovation project will provide critically needed space for the GAL, currently located in the basement of the Wittenborg (constructed 1926) and Link (constructed 1990) Buildings. The proposed renovation location was identified in the adjacent Johnson (constructed 1946) Building. Through an initial assessment and test fit study of the Johnson Building, it was determined that existing constraints resulted in limitations to meet the GAL goals and space requirements.

To address these constraints, the General Education Building (GEB) (constructed 1975) was identified as an alternative location for the GAL renovation. This location had many positive attributes that met both space requirements and project goals. The GEB, containing classrooms, and other teaching support space as well as student amenities such as break areas, provides an ideal location for the new GAL. The GAL renovation will include the large labs, smaller flex labs and all other related support functions (reference Section 3.0 for detailed list and description of space and design requirements.)

Programming Process

As further outlined in the report, the Program defines the following for the overall project and for each functional component:

GOALS: Goals (as noted below) define the mission and intended purpose of the renovation. As defined by the UTHSC Planning Team, the goals are key objectives that must be met to make the project a success.

FACTS: These are the fixed constraints on the project, including existing building conditions, UTHSC design and planning standards, Building and Life Safety Codes and Regulations.

CONCEPTS: Concepts are developed around functional relationships and define how project components could work together and relate to other functions. These space relationships

were developed in a series of Test Fit options and the resulting proposed concept (reference Section 3.0 for test fit diagram. The test fits are not intended to be a design for the space but a study in potential adjacencies and flow between spaces. Additional test fit options are provided in the diagrams and Appendix B, Illustrating Alternate Space Relationship at the back of house areas.).

NEEDS: This information describes what is required to achieve the defined goals and space requirements (how many spaces, what type and what size).

As part of process to define functional and space requirements, several examples of other facilities were considered. In particular, two facilities that most closely align with UTHSC's goals and functional requirements included:

- The University of Central Florida, Gross Anatomy Laboratory: UTHSC Planning Team members toured this facility previously, and, HOK was familiar with the project and related functions.
- Augusta University, Medical College of Georgia, Gross Anatomy Laboratory: A group from UTHSC and HOK toured this facility to identify functions and criteria that applied to the proposed renovation.

Based on the program requirements and the proposed existing space available in the GEB, several Test Fit Concepts were developed for review and evaluation by UTHSC. The Concept options were evaluated based on program requirements, including the project goals for success. The Test Fit Concepts included in this report are identified as potential approaches. The Test Fits are not the "design", but an exercise to confirm the proposed program will fit well in the proposed GEB. The test fits also indicate potential space adjacency and flow for Students, Faculty, Staff and equipment. The actual design will be developed in the next phase of the project, following approval to move forward by UTHSC.

The program requirements and Test Fit Concept were used as the basis of developing the Preliminary Estimate of Construction Cost.

Programming requirements outlined in this report will form the basis of design when the project is funded to move forward. The future design effort will include Schematic Design, Design Development and Contract Documents for constructing of the renovation.

Existing Gross Anatomy Laboratory

Based on work done by the Anatomy Curriculum Task Force and a Subset of this task force, UTHSC had defined recommendations for potential new facilities that defined the need for the renovation project. The findings from this task force created the need for a design firm to provide Programming and Feasibility study for the project to further define the needs, goals and concepts for the renovating the GAL. Comments on the existing facility by the Task Force had noted issue with the smaller rooms, condition of interior finishes and lighting levels of the labs not providing an ideal space for teaching gross anatomy. The recommendations discussed the possibility of creating new space in adjacent Johnson building and renovating the existing space in Wittenborg building. The recommendations included upgrading existing equipment and adding technology to the space to provide a safer working environment and access to online or digital information to support the teaching needs in the in the GAL.

During the programming process for the project the Design Team evaluated the space suggest in the recommendations and identified the space would not address the requested needs for the

GAL. The issues found within Johnson included; existing Generator that cannot move, existing IT infrastructure for campus that cannot move, existing mechanical space for building could not be relocated, existing floor to floor heights were too low, access to natural day light is limited, and existing building entries would create security issues and separate the space into multiple areas. Using the space in Johnson would not address the issues the Task Force had defined.

The 5th floor Johnson building was studied as an option for the GAL. The space was identified as not having space not large enough and access to be an issue from the existing Morgue in Link Building on level 01. Based on a series of test fit layouts, the space on the 5th floor would not accommodate the larger space requested for the GAL. The remote location would create a physical separation between the GAL and Morgue that would become a logistical challenge at the start and end of each class term. The existing elevator in Johnson that would provide vertical connection between the GAL and Morgue was noted too small to accommodate standard dissection table dimensions. Due to the location of the elevator and use by the other users of Johnson building created an issue with transporting dissection tables through public areas.

Based on the initial review of the existing space in Johnson, Link and Wittenborg buildings a renovated space would not provide type of spaces needed for teaching and support service needed to relocated the GAL and related spaces. The option to use space in GEB was suggested by UTHSC as a building that may be able to accommodate the GAL due to recent vacated spaces due to newly constructed spaces on campus. The wing B of GEB was evaluated and noted it would provide the space needed relocated the entire GAL and related support spaces. Based on walkthrough of the existing building and review of the floor plans the third floor identified as potential location for the GAL. Other floors could accommodate the GAL but main issues that influenced the decision was the limited columns and location below the roof above. The location below the roof would limit then need for large supply and exhaust ducts to penetrate multiple floors that would extend the scope of work for the renovation. The space in GEB would address the issues noted by the task force and provide a new space that would allow the GAL to benefit the medical education program at UTHSC.

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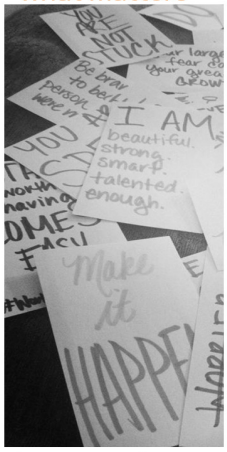
what is

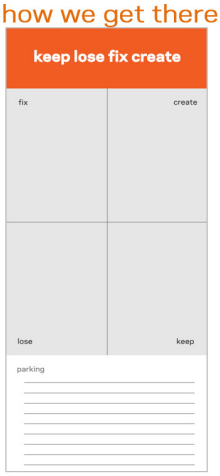
trends/tours

what matters

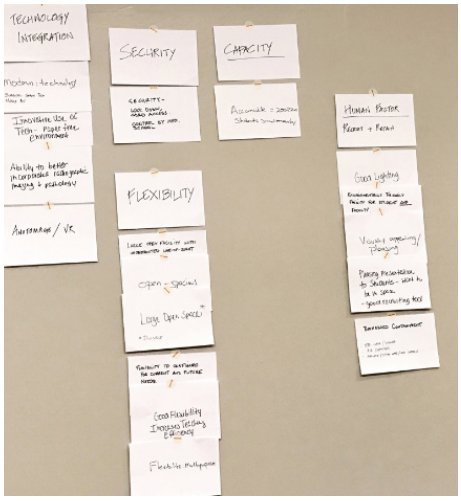


key success factors

how we get there



keep-lose-fix-create



C. PROJECT GOALS

During the Kick-Off Work Session, the UTHSC Planning Team identified the following key goals and objectives to make the new Gross Anatomy Lab a success.

Capacity

- Accommodate a minimum of 220 students (44 dissection tables at 5 students each) simultaneously; 250 students (50 dissection tables) was defined as maximum number of students for growth of the program.

Flexibility

- Large open Gross Anatomy Lab with ability to divide into smaller spaces. This best accommodates smaller classroom requirements.
- Multi-Purpose spaces
- Space design to increase teaching efficiency; reduce faculty to student ratio for gross anatomy teaching providing fewer number of faculty members to teach in the GAL.
- Small Flex Space laboratory space designed to accommodate 3 dissection tables
- Unobstructed line-of-sight in large gross anatomy lab to aide in monitoring and teaching in the space.
- Branding – Lab On Display
- Ability to reconfigure for current and future needs
- Flexibility in utility needs – number and capacity of electricity; other utilities
- Ability to accommodate the larger gross anatomy class in one room.
- Accommodate up to 250 medical students in one classroom
- Prosection station for demonstration and exams; space provided to accommodate an additional dissection tables in the GAL.

Security

- Would like ability for SOM to control and manage security access directly, currently coordinating with Campus Security who controls security system access.
- Secured access to teaching and back of house spaces from public areas and between areas of the GAL.

- Security of cadaver information / images is primary concern
- Restrict students access of GAL during exam set-up; currently coordinating through Campus Security

Technology Integration

- Modern Technology – surgical grade equipment and technology
- Mobile AV cart – flexible option vs. cameras at each dissection table
- Innovative use of technology – paper free environment
- Ability to incorporate radiographic imaging & pathology
- Anatomage table and Virtual Reality for anatomy exploration
- Ability to compare radiology images and cadaver – prepped for comparison
- Access to outside information using the internet
- Show digital images at one dissection table or on multiple monitors for viewing by the entire classroom.

Human Factor

- Create a positive environment to support recruitment, retention and well being
- Good lighting – artificial and natural
- Visually appealing / pleasing space and environment
- A space that is pleasing to students, and a space they want to be in.
- Address Biohazard Containment and Safety for GAL and Support spaces.
    - Eye-wash / shower – prefer eye wash with floor drain, problems when activated for emergencies and testing (Facilities subsequently noted problems with maintaining floor drains)
    - GAL Space provided with 20 air changes per hour needed for safe working environment
    - Restricted entry to facility and back of house areas.
    - HEPA or ULPA filtered supply air to prevent mold growth on cadavers from outside contaminates.
    - Seamless flooring with integral coved base for easy cleaning of spaces.

Existing GAL Continued Operations

- Based on the current class schedule there will not be a time for when the GAL could be offline for renovation. The existing GAL must remain in operation during the renovation and move-in process to address current class room needs throughout the year.

D. PROJECT SCHEDULE

Project schedule for Design and Construction will be developed during the Request for Proposals selection process for design services.

E. PROJECT BUDGET

The project budget, developed in coordination with the UTHSC Planning Team, includes preliminary estimate of construction cost and related cost including; design fees, equipment and furniture.

UTHSC Gross Anatomy Lab Renovation Programming SBC No.540/013-02-2017		GEB Test Fit		
		COST PER SQ. FT.	GROSS SF AREA OF RENOVATION	Amount
	Renovation of Existing Building (only interior)	$ 213.70	34,421	$ 7,355,614
	Fixed Equipment			$ 1,654,685
	Site Work at Incinerator Exhaust			$ 28,592
	BID TARGET BUILDING	**$ 263**	**34,421**	**$ 9,038,891**
	Environmental / Asbestos Removal			$ 57,185
	Demolition			$ 472,409
	BID TARGET INCLUDING DEMO|INFRASTRUCTURE	**$ 278**	**34,421**	**$ 9,568,485**
0%	Design Contingency			$ -
0%	Escalation to 2021 (5% annually)			$ -
	TOTAL BID TARGET	**$ 278**	**34,421**	**$ 9,568,485**
5%	Owner' Construction Contingency			$ 478,424
	MACC	**$ 292**	**34,421**	**$ 10,046,909**
Below-the-Line Items				
	A/E Design Fees (Basic Service)	5.98%		$ 600,888
	Renovation Fee Multiplier (x1.25 of Basic Service Fee)			$ 150,222
	Equipment, Owner Supplied and Installed			$ 1,000,000
	Furniture, Other FFE by Owner			$ 1,000,000
	Audio Visual Construction Cost			$,395,000
2.%	OIT Equipment			$ 200,938
5.%	Admin and Miscellaneous			$ 719,698
	Subtotal Below-the-Line Items			**$ 5,066,747**
	PROJECT Sub-Total			**$ 15,113,656**
	Financing			$ -
	TOTAL PROJECT COST	**$ 439**	**34,421**	**$ 15,113,656**

2.0 - BUILDING CODE AND EXISTING BUILDING ASSESSMENT

A. GENERAL

The proposed construction of the GAL and support spaces (see proposed plans) are to be within the existing GEB. The existing building was built in 1975 and currently houses various classrooms, labs and related support spaces for the medical education program, Dental and other program at UTHSC.

The areas noted in the test fits for renovated space in the basement and third floor were identified as suitable areas for the project. The basement was identified during walkthrough of the facility and evaluation of access in the building for housing the cremation equipment. The vacant space along the exterior wall with direct access to the loading dock and service elevator was identified as a space well suited for the cremation equipment. Due to the size and weight of the cremation equipment a location would need to be placed on soil bearing foundation slab near an exterior wall. This would provide a route for the large exhaust flue to above the roof and new foundation to support the 30,000 lb. equipment with direct access to the loading dock.

The location on the third floor was identified as the proposed location due to long structural spans and limited disruption needed to functions on other floors. The limited columns on the third floor would allow for a larger open GAL to be provided with limited visual obstructions. The location directly below the roof limited the disruption to other areas due to added shafts needed for supply and exhaust ductwork needing to be routed to the roof. Due to the requirements for higher air change rates in the GAL the existing HVAC needed added capacity to provide added supply and exhaust system additional. Based on review of existing systems capacity there is not enough capacity to support the demand for load and air changes, refer to the mechanical narrative for additional information.

The location on the third floor does require the relocation of the existing Pharmacy and Dental teaching labs. This report did not define potential locations and cost associated with moving these teaching labs.

B. CODE ASSESSMENT

The building is constructed as a concrete structure and assumed to be classified as a Type II fully sprinklered Construction Type as defined under the current applicable 2012 edition of the International Building Code (IBC).

The initial, current and proposed occupancy would be Business Group B, as defined in the IBC, for educational occupancies for students above the 12th grade. Individual spaces would be calculated on use and related occupancy, but would be accessory to the primary occupancy and does not require occupancy separation.

The current applicable review codes, utilized by the Tennessee Division of Fire Prevention, are as follows:

a. International Building Code (IBC), 2012 edition, published by the International Code Council (ICC), except for:
    1. Chapter 11 Accessibility; and
    2. Chapter 34, Section 3411 Accessibility for Existing Buildings; but does utilize the 2010 Edition of the ADA
b. The International Fuel Gas Code (IFGC), 2012 edition, published by the International Code Council (ICC);
c. The International Mechanical Code (IMC), 2012 edition, published by the International Code Council
d. The International Plumbing Code (IPC), 2012 edition, published by the International Code Council (ICC);
e. The International Property Maintenance Code (IPMC), 2012 edition, published by the International Code Council (ICC);
f. The International Fire Code (IFC), 2012 edition, published by the International Code Council (ICC);
g. The International Energy Conservation Code (IECC), 2012 edition, published by the International Code Council (ICC);
h. The International Existing Building Code (IEBC), 2012 edition, published by the International Code Council (ICC);
i. For state buildings, educational occupancies and any other occupancy requiring an inspection by the state fire marshal for initial licensure, NFPA 101 Life Safety Code, 2012 edition, published by the National Fire Protection Association (NFPA); and,
j. No provision of the preceding cited publications shall be adopted that conflicts with:
    1. The installation and service standards of portable fire extinguishers and fixed extinguisher systems in Tenn. Comp. R. & Regs. 0780-02-14-.02; and,

    The state does not anticipate adopting a new code for another six (6) years and would likely to be the 2018 edition of the IBC. Local code enforcement does not review state owned and operated facilities.

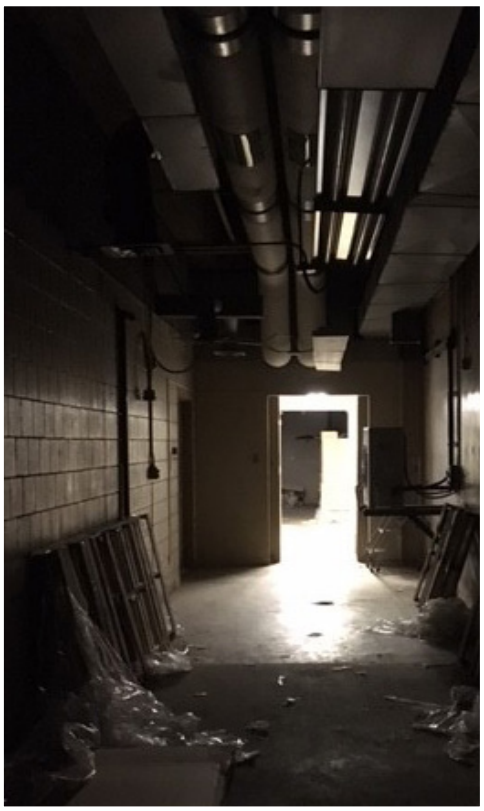
Current policy for both the University of Tennessee, Division of Facilities Planning and the Tennessee Division of Fire Prevention, is that elements that are existing, Code Complaint at the time of construction, and not altered by new construction, can remain as is. However, altered or new elements, must conform to the current codes at the time of construction. An exception would be for elevators, which require annual inspection and certification. These are to be maintained to current standards or operation and achievable accessibility. The existing elevators are not to be part of the project scope of work and are being addressed under other renovation project scope.

There are currently no other governing entities which have jurisdiction over construction or operations.

C. BUILDING CONDITIONS

The facility is in generally good and well maintained condition with the roof recently replaced.

Accessibility conformance is well below current standards. Due to remove of existing fixtures and the existing restrooms are not code compliant the spaces will need to be renovated to meet current Accessibility standards per ADA 2010 for new and existing restrooms. Drinking fountains, toilets, urinals and lavatories are within the scope of work will need to comply with current accessibility and code requirements.



Energy conservation standards for the existing building are below current standards. All new construction will need to comply with current energy requirements. The existing building systems are outside the scope of work for the project and will not need to be upgraded unless required by the building codes or project scope of work.

Plumbing fixtures to be replaced or new fixtures are to be provided per the building codes and occupancy load for the renovated spaces. Overall fixture counts will need to be verified to ensure fixtures are in compliance due to the change in occupant load for the entire floor.

The existing spaces at the basement have been previously demolished and is currently not occupied. One end of the space along the north exterior wall has been used for IT systems but the space is currently not used for assignable space. Based review of the exposed piping, ductwork and conduit the space will require limited amount of re-work to accommodate the new program equipment. The new construction will need to be evaluated for the clearances needed for route of a new floor penetrating the foundation wall and potential relocation of utilities at the exterior below the drive and sidewalk.

The area of the third floor renovated spaces are proposed to occupy wing B and C of the GEB. The spaces are in currently in use by the Pharmacy and Dental program with students using the wing C space. The spaces at the east end of wing B have been vacated due to the new spaces provided at the new Center for Healthcare Improvement and Patient Simulation building. The existing spaces provide access to daylight and large open space. The interior construction has not been significantly change since the buildings construction. The renovation would remove existing walls, toilets and MEP systems retaining a limited amount of the existing interior construction. The area around the atrium would remain intact with minor upgrades to the existing finishes.

D. CONSTRUCTION ISSUES

A proposed addition of two crematory units at the Basement, would be in the space at the north exterior wall. The area was designed for and utilized as animal care, but is currently used as storage. It has direct corridor access to the commercial grade truck receiving dock, to the east. Exhaust and combustion air would exit this level, below grade, and extend upward along the exterior side of north wall face. The exterior area is a driveway and walk between the GEB and adjacent parking garage. Sidewalk modifications would need to be made, but would not impede vehicle traffic.

The open atrium is currently separated with an outer 2-hour rated wall, which will need to be maintained.

The use and occupancy of this sprinklered building will not require rated exit access corridors, but are to be smoke tight.

All new or altered components to be ADA compliant.

Chemicals used for lab and embalming fluids are not expected to require separation or exceed the maximum allowed quantiles per control areas as defined in the building codes. All chemicals being stored are recommended to be in approve storage cabinets for safety and to increase the allowable amounts to be stored. All anticipated chemicals stored or in use will require submission of MSDS, per NFPA, for review and final determination; to the State Fire Marshal.

The structural support of crematories, air handlers, exhaust fans and other fixed equipment will need to be evaluated for the added loads on the structural system. The crematories at the basement will need new structural concrete slab and will need to be evaluated during design for required structural load support. Added equipment at the roof will require a galvanized steel dunnage rack with post above existing columns to limit loads on existing beams. The existing structure will need to be evaluated in detail during design when basis of design for equipment and systems have been established.

The existing interior construction of wing B will be demolished with the walls for stairs and shafts, elevators to remain. Exterior glazing is expect to remain as is and will be reviewed during design for issues that may require repair and/or replacement.

Third floor GEB Dental Teaching Lab

Third floor GEB Dental Teaching Lab

Rear alley of GEB

Third floor corridor GEB

Third floor GEB Pharmacy lab

3.0 - PROGRAM DESCRIPTIONS + SPACE DIAGRAMS

UTHSC GROSS ANATOMY LABS

The goal of the project is to upgrade the capabilities of the existing gross anatomy curriculum and house it in a state-of-the-art facility. The renovation will create a 'hub' or a home for Gross Anatomy with opportunities for branding and display. The program is developed to accommodate anticipated growth and allow multiple departments and classes to run simultaneously. Given the reduction in the number of available faculty, newer labs will allow for better and more efficient utilization with fewer resources.

Ancillary functions such as surgery training for specialized programs, refresher courses during summer and for profit use of labs has been factored in the program spaces and test fit diagram. With more efficient labs, equipment and a better ambiance, the renovation will help upgrade the overall quality of health education on UTHSC's campus.

A. PROJECTED ENROLLMENT

Through large anatomy labs and flexible labs, the Program will be accommodating enrollment as depicted in the program summary and expected student space needs. The goal of the renovated labs is to accommodate 250 students at one time in the GAL. The dissection stations in the GAL and Flex Labs are anticipating to have 5 students per dissecting table.

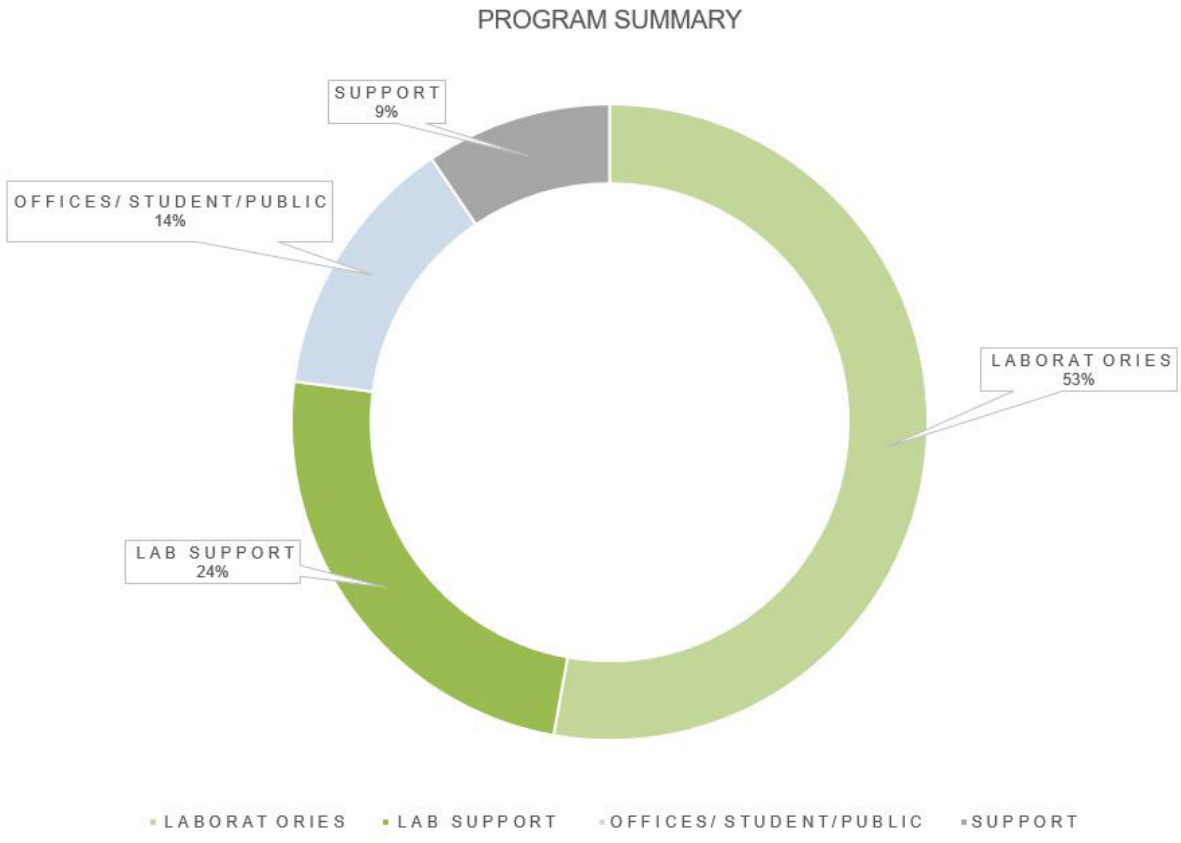
PROGRAM	NO. OF STUDENTS	STUDENTS/ TABLE	TOTAL TABLES	SEMESTER	NOTES
Medicine	180	5	36	Fall	10 + for residents
Nursing	30		1	Fall	Prosection demo
PA	60	5	12	Spring	After PT/OT
Dentistry	100	5	20	Spring	
PT/OT	100	5	20	Prior to Spring Break	Taught simultaneously w/Dentistry
TIP-3	10	5	2	June	

B. PROGRAM SUMMARY

Programmatically, there are four main components that include laboratories, laboratory support, general support and public student areas. The majority of program area is gross anatomy labs, reflecting the focus of the program. Lab support areas encompass donor intake, processing, storage, prep spaces as well as post processing including a crematorium and cremain storage.

There is a distinct physical and ideological separation between areas designated for labs and lab support and those designated for other teaching, learning and collaboration activities. This separation is emphasized and separate spaces are designated as Student Resource and Anatomy Classroom. Please see a description of these spaces defined in the room data sheets. The Bequest Administration will have an office and family greeting area in this zone as well.

Lockers, changing areas and showers for students as well as faculty are critical for an efficient workflow and hygienic protocols. These have been integrated herein.



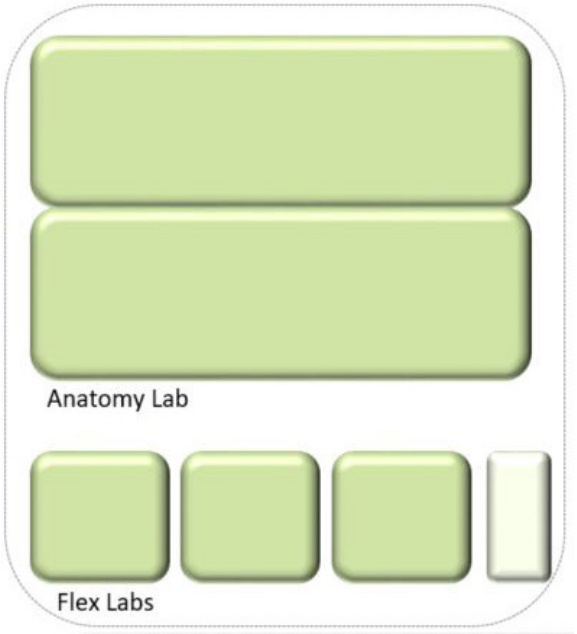
C. PROGRAM OF SPACES

Through a series of programming work sessions with UTHSC and detailed conversations, programmatic and functional criteria were established for each of the spaces listed in the Program document. The notes and description herein reflect the design intent and purposeful vision established with UTHSC. Salient spaces are described below. Refer to the Program and room data sheets for detailed information on each space.

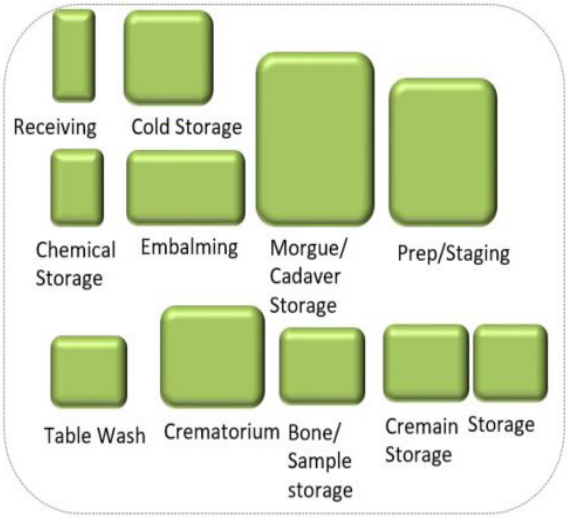
UTHSC GROSS ANATOMY RENOVATION PROGRAM

NO.	FICM		Programed Spaces Qty.	No. of stations/ units	No. of students per station	Typical module	Net Area (NSF)	Programmed Area (NSF)	Notes
1		**LABORATORIES**							
1.01	210	Anatomy Lab	1	50	5	210	10,500.0	**10,500.0**	Open, contiguous space, sub dividable into 2 sections. Each lab should be individually securable. Spine configuration is preferred over open, ballroom layout.
1.02	210	Anatomy Flex Lab	3	4	5	180	720.0	**2,160.0**	Multipurpose space to be used for practice surgery for specialized programs, refresher courses in summer, for for-profit use of lab etc. Infrastructure same as Anatomy Lab
1.03	210	Small Anatomy Flex Lab	1	1	5	180	180.0	**180.0**	Small flex lab with only one dissection table for special projects. Infrastructure same as Anatomy Lab
		Total Anatomy Labs						**12,840**	
2		**LAB SUPPORT**							
2.01	215	Receiving	1				200.0	**200.0**	Maximum four donors received at a time.
2.02	215	Cold Room	1	6 to 8			250.0	**250.0**	Future use.
2.03	215	Embalming room	1	2			375.0	**375.0**	Two embalming stations
2.04	215	Chemical Storage	1				150.0	**150.0**	
2.05	215	Morgue/ Cadaver Storage	1	250			1,750.0	**1,750.0**	Temperature controlled area. 250 racks - 5 high units
2.06	215	Prep/Staging area	1	25			1,200.0	**1,200.0**	Staging/ holding of 25-30 tables
2.07	215	Wash Down Room	1				200	**200.0**	Wash/hose down area- 2 tables
2.08	215	Storage Bones	1				400	**400.0**	Secured storage for bones . Bones are stored in large and small wooden suitcases and checked out by students. Locate close to anatomy lab
2.09	215	Crematorium	1	2			750.0	**750.0**	2 cremation chambers and staging space for 4-6 tables
2.11	215	Cremain Storage	1	300			315.0	**315.0**	6"x9"x12" urn. Provide shelving for 300 urns
2.12	215	Storage Tables/ Dry Good	1	10			300.0	**300.0**	Table and dry goods storage
		Total Anatomy Lab Support						**5,890.0**	
3		**OFFICES/ STUDENT/PUBLIC**							
3.01	W05	Anatomy Reception/Lobby	1				400.0	**400.0**	Display and branding of department
3.02	110	Classroom/Resource Cent	1		5 to 7		1,500.0	**1,500.0**	Space for 50 students. Multipurpose space- used for radiology space, crossections, models, small group work. Also used as nursing/PA classroom space. Provide AV /markerboards, one hand washing sink nearby
3.03	110	Anatomy Classroom	1		5 to 7		900.0	**900.0**	Anatomage table + 10-20 students Small group study
3.04	310	Bequest Admin Office	1				150.0	**150.0**	Donor Files secure storage
3.05	310	Tech Offices	3				60.0	**180.0**	Shared office
3.06	310	Bequest Family Area	1				150.0	**150.0**	Discreet area to meet donor families. Adjacent to Bequest Admin office
3.07	310	Tutoring	1				150.0	**150.0**	
3.08		Break Area	1				0.0	**0.0**	Building amenity may be used instead
		Total Office						**3,430**	
4		**BUILDING SUPPORT/OPERATIONS**							
4.01	X03	Lockers/Changing Men	1	125		7.25	900.0	**900.0**	Z- lockers
4.02	X03	Lockers/Changing Women	1	125		7.25	900.0	**900.0**	
4.03	X03	Lockers/Shower Faculty	2			150	300.0	**300.0**	Separate faculty changing area, shower and restroom
4.05	X03	Shower - Students	2				100.0	**200.0**	
		Total Support						**2,300**	
		PROGRAM TOTAL						**24,460**	

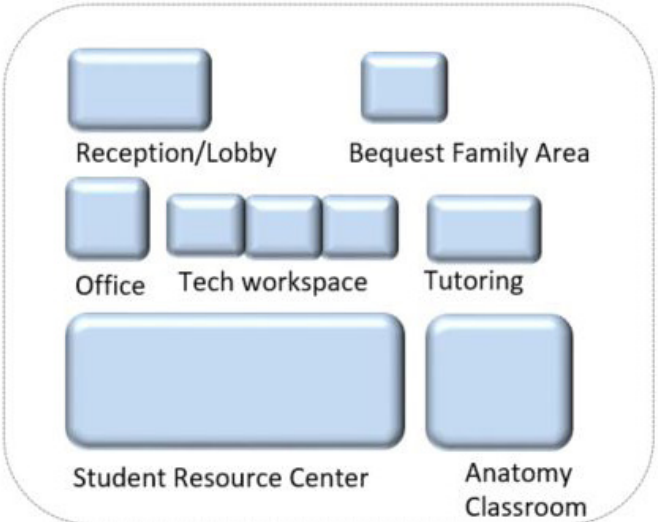
Program Space Diagram



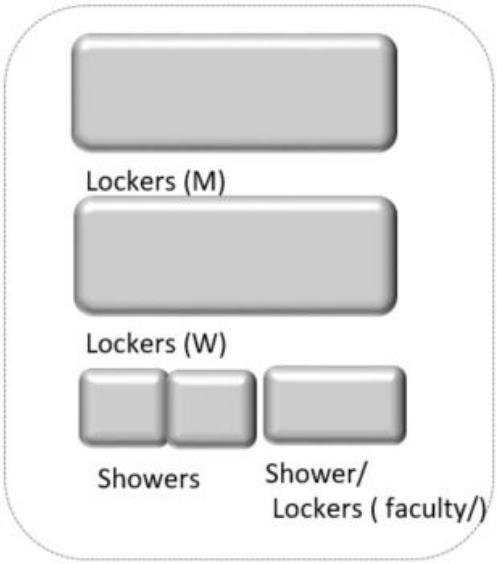
1 Laboratories



2 Lab Support



3 Offices/Student/Public



4 Building Support/Operations

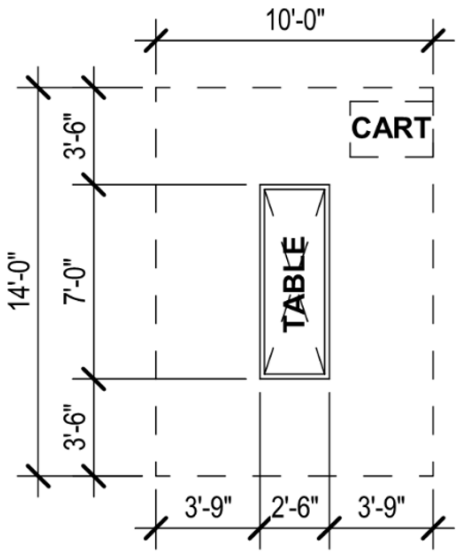
GROSS ANATOMY LABS

These spaces are the heart of the program and this renovation and will allow for the teaching of the Gross Anatomy curriculum more efficiently both with infrastructure as well as aesthetics. One of the goals is to be able to teach an entire class of 250 students with clear sight lines, well- lit, and clutter free environment. The space is designed to be divisible (using a mechanically operated vertical dividing wall) in two separate areas allowing each space to be individually secured. The quality and construction of this wall is of prime importance as an acoustic separation of the spaces is critical. The labs will house a minimum of 25 dissecting tables each with five students allocated per table. In addition there will be a designated demonstration table in each lab subdivide lab area.

Two modules or configurations of dissecting tables were discussed with the users at UTHSC. A 'freestanding or ballroom' configuration and a 'spine' layout were discussed at length evaluating the pros and cons for each. UTHSC has indicated a preference for the 'spine' configuration.

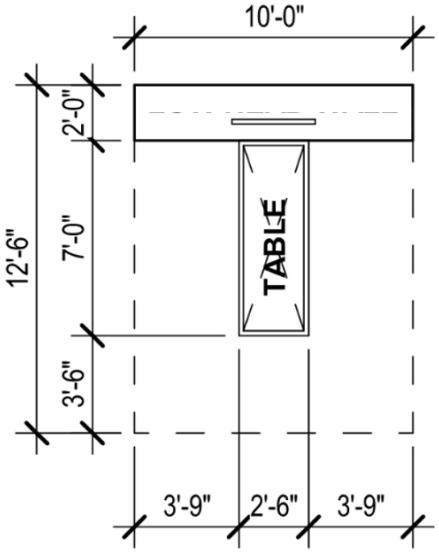
The spine configuration allows for a docking of the stations with access to a computer, monitor, power, tool storage and provides low exhaust at each table. Dual head surgical LED lights LED will be mounted overhead. Please refer to room data sheets and narratives for detailed information on these labs.

Free Standing Table



10′ x 14′ 140 sq. ft.
Plus circulation X1.5 210 sq. ft.

Spine Table



10′ x 12′-6″ 1 sq. ft.
Plus circulation X1.5 188 sq. ft.

FLEXIBLE ANATOMY LABS

The labs are to be outfitted and designed similar to the gross anatomy labs in terms of finishes and infrastructure. These will have multiple dissecting tables, support equipment and a similar allocation of 5 students per table. There is a need for Flex Labs for specialized programs, refresher courses in summer and outside for-profit company's use of facilities.

SMALL FLEXIBLE ANATOMY LAB

Provides space for special projects, prosections preparation and other needs that may arise in the future, this lab is to house only one dissecting table and infrastructure similar to the larger anatomy labs.

LABORATORY SUPPORT AREAS

Storage and support spaces are vital to maintain the facility and provide the necessary support needed for the GAL. The support spaces include receiving, processing and storage of donors and materials needed to support the GAL.

The arrangement of the support areas will need to be arranged to support the efficient movement of cadavers with in the facility. The movement of cadavers in the facility will follow the general flow of ; donor receipt, temporary storage, preprocessing, embalming, staging, GAL use, post processing and cremation. The move of cadavers between spaces will need to factor security, privacy, bio-safety and efficient movement of support staff. The receiving cold room and Morgue Cadaver Storage provide conditioned space for the storage of cadavers. Additional spaces are provided for storage, staging and cleaning of tables and instruments.

EMBALMING ROOM & CHEMICAL STORAGE

This space here will be used for the embalming process on cadavers and prep for gross anatomy lab space use. Two embalming stations are being provided to allow processing of multiple donors or provide addition work space for donors needing additional preparation. Apart from the embalming stations and embalming tables the space will need to be designed to support; hi/low exhaust, chemical usage, material storage, chemicals storage, and miscellaneous materials. A chemical storage area will be required directly adjacent to this space to store and distribute chemicals for the embalming room. Stainless steel casework in the embalming room and chemical storage cabinets in the storage room will be required. After embalming, cadavers will be transferred into the morgue cadaver storage room where they will be held until preparations for the next semester begin.

MORGUE CADAVER STORAGE

The storage area will be the main storage area for cadavers when not in the GAL. This space will allow for storage of cadavers before and after use at partner facilities that the department provides services for on or off campus locations. The donors will be stored on a five tiered rack system that will be provided as part of the construction project. The racks will need to facilitate easy movement of body trays with cadavers from the racks to mobile tables. Cadavers will be held here until they are ready for distribution to the GAL or partner institutions. There should be space for approximately 250 cadavers and circulation needed to move tables, lifts and trays in the space. Cadavers previously placed on body trays will be transferred onto tables where they will be moved into the prep/staging room for staging prior to being distributed into the actual gross anatomy labs. This room needs to be conditioned with HEPA filtered supply air maintain cadavers with minimum degradation. Refer to room data sheets for additional information.

PREP STAGING AREA

The space will provide a designated area where tables can be setup prior to a semester set up in the GAL. The room will provide a work areas outside of the storage areas for setup and post processing of anatomy tables and donors. The new gross anatomy lab will be significantly larger than current and it will be important to have an appropriately sized support space and good material management flow through the space and adjacent areas. The space will provide sufficient space for tables with cadaver's pre and post staging for the multiple gross anatomy and flex labs.

WASH DOWN ROOM

The room will provide a space for the cadaver to be removed from the table and tray after use in the GAL. The equipment will need to be thoroughly cleaned creating a demand for appropriate space. Current this process is being done inside the same room as the embalming procedures creating logistical and space issues. In the renovation, the wash down will have its own dedicated enclosed space to provide a space to contain the activities of the cleaning and limit disruptions to other areas in the facilities. The room is to hold up to two (2) tables with trays with access to all sides to allow efficient cleaning of the table and equipment. The room will have sealed finishes on floors, walls and ceilings to prevent water damage to materials and adjacent areas.

STUDENT RESOURCE CENTER

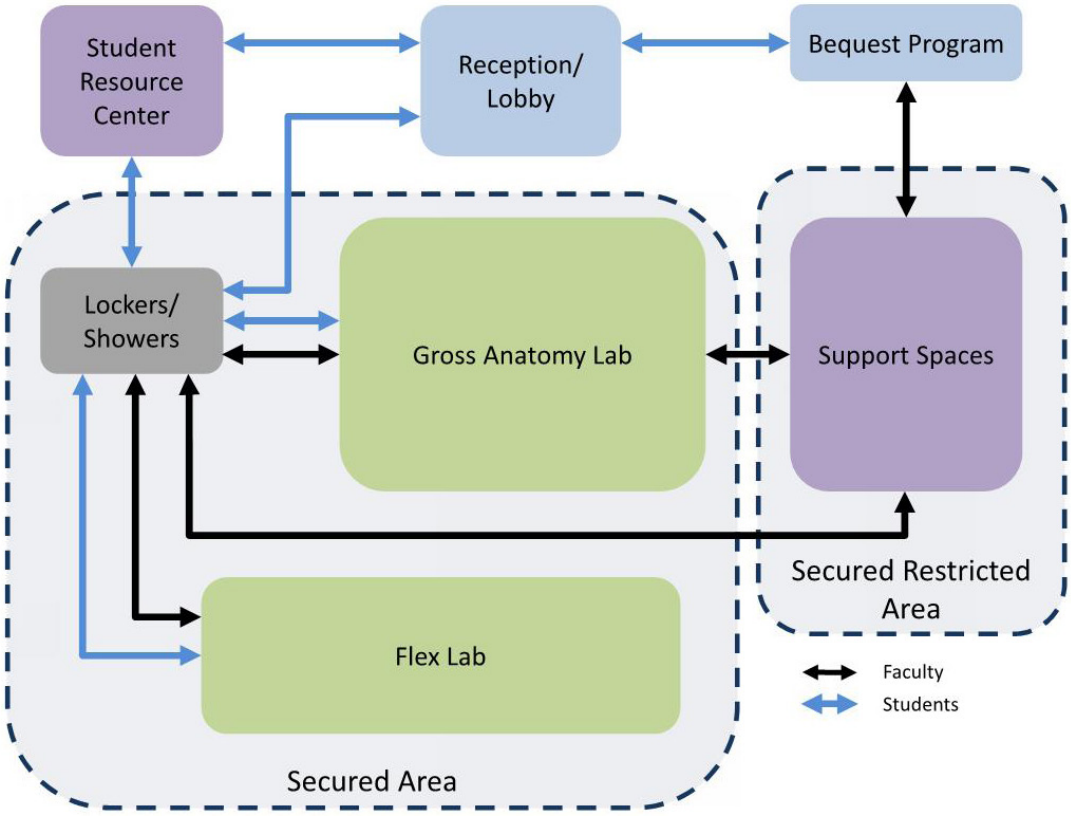
The Student Resource Center will be a multipurpose spaces that will be used for teaching students, team learning and individual study of; gross anatomy, radiology, Nursing and Physicians Assistants and other medical students. The space will allow for reviewing; anatomy images, prepared cross-sections and anatomical models by students. It will need computers connected to the AV systems in the room to allow students access to study materials for pre- and post-class discussions and research. Flat screen monitors with computers will be provided for presentations, team reviews and online research related to anatomy. The team tables are to be provided to allow 6-8 students to work as a team to view images and material on the monitor while interacting with the faculty and other students. Storage space will be required for anatomical models and hardcopy resource materials.

ANATOMY CLASSROOM

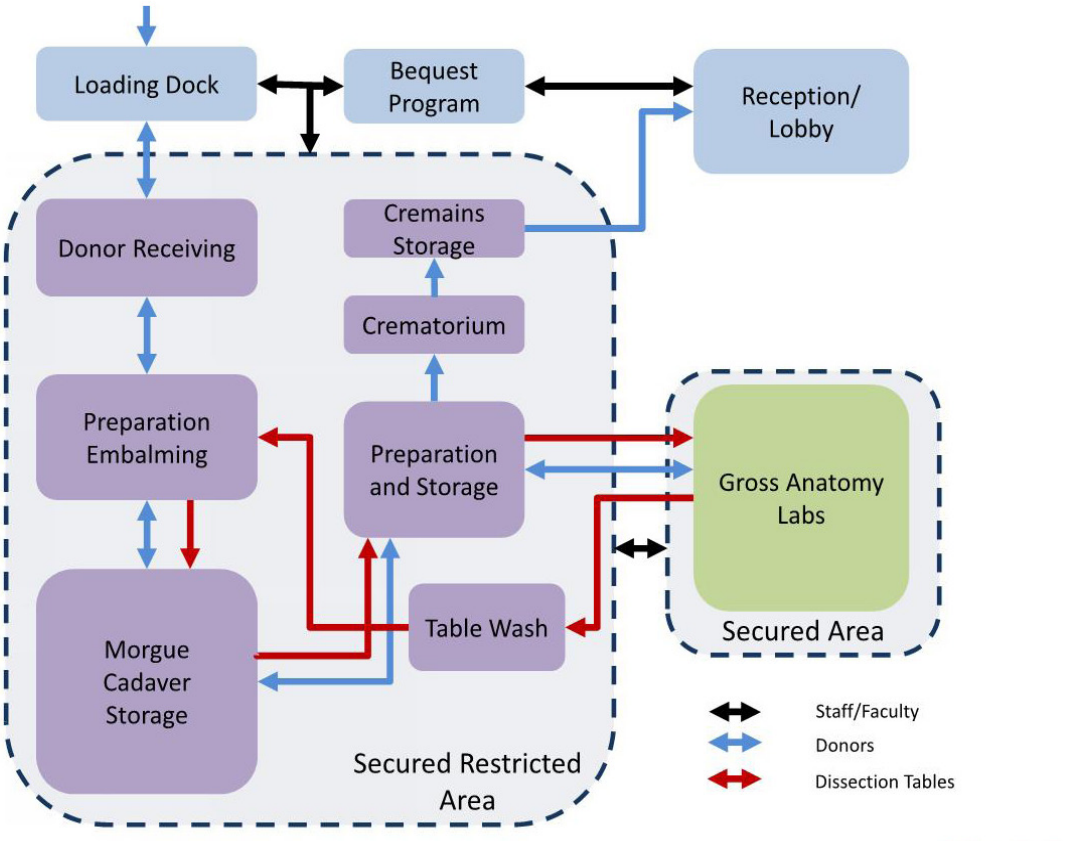
A smaller space that needs to be adjacent to the Student Resource Center will provide space for an Anatomage table and small group learning of anatomy. This space will allow for the faculty to meet with students to review learning objectives, review bone specimens, view images obtained from the GAL dissections and use the Anatomage Table.

D. ADJACENCIES AND FLOW DIAGRAMS

The spaces will need to be developed to provide zones for Public, Student, Faculty and Support Areas. The Public zones will allow for access by Students, escorted visitors and Donor families while restricting access to student and support areas. The student zone will allow for students to have access classrooms and the GAL but restrict access to the support spaces due to security and bio-safety concerns. Support Area zones will be restricted to faculty and staff to maintain security and privacy of donors, bio-safety and safety for other users of the building. The movement and flow of the Public, Students, Faculty and Staff needs to be developed to provide to maintain clear and efficient flow between the space while restricting access where required.



Faculty and Student Flow Diagram



Donor Flow Diagram

E. EQUIPMENT

The functionality of the gross anatomy lab is highly dependent on its ability to be versatile and efficient. Equipment selection for a space will be developed to allow for good ergonomics and easy cleaning. Equipment will re-use some of the tables from the existing GAL in the support areas with new equipment defined as follows the following items.

CUSTOM DISSECTING TABLE (owner furnished equipment)
Anatomy dissecting table that meets the unique needs of the users has been agreed upon as the basis of design for this project. Primary features include:

- A stainless steel top enclosed with a hinged cover at the top. Basis of design manufacture; Mopec Model; HB300CUST as defined in the quote provided in the appendix.
- A hydraulic tilt/elevating cadaver base (see below)

CADAVER BASE (ELEVATING) (owner furnished equipment)

- Basis of Design: Mopec, Autopsy Table, Model DC100 with custom top HB3000CUST
- Overall Dimensions: 32" W x 80-1/2" L x (32" TO 45") High
- Description: The autopsy table elevates and/or tilts at both ends.
- Features:
  - Dual side mounted foot controls for elevating on either side.
  - Dual locking levers to lock all the wheels simultaneously form either ends.
  - Removable top.
  - The upper carriage - a four post style support system for the autopsy cart top.
  - Elevating Stretcher- dual/single controlled foot pedal operated hydraulic elevating pistons.
  - Heavy-Duty 8 inch diameter casters with dual locking mechanism

CADAVER LIFT (construction furnished equipment)

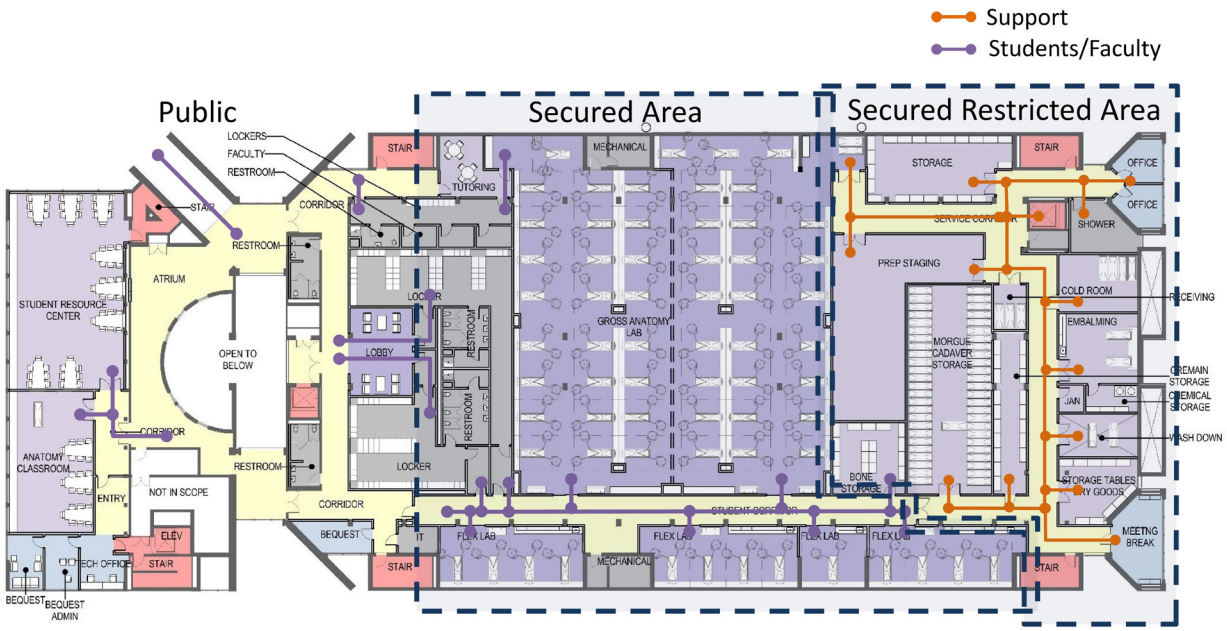
- Basis of Specification: Mopec, Model JD715 – Hand Crank Cadaver Lift. Provide (1) lift.
- Description: The Cadaver Lift is a mechanism that allows for the transfer and docking of the tops to both the racks in the morgue as well as the table.
- Features:
  - Up to 1,000 lbs. capacity.
  - Support: Base & Stabilizer are welded steel for extra support.
  - Casters: Non marring mold on Preforma. Casters are durable and long lasting heavy duty welded steel frame. Non marking casters easily roll over debris, curbs and soft or uneven ground without collection.
  - Roller Systems: Lightweight aluminum telescoping mast cross roller system is fabricated of extruded 6061-T6 aluminum with 4-point roller system between columns, which eliminates adjustment or servicing.

CARTS (existing owner furnished)
Existing stainless steel carts to be reused as needed for the project.

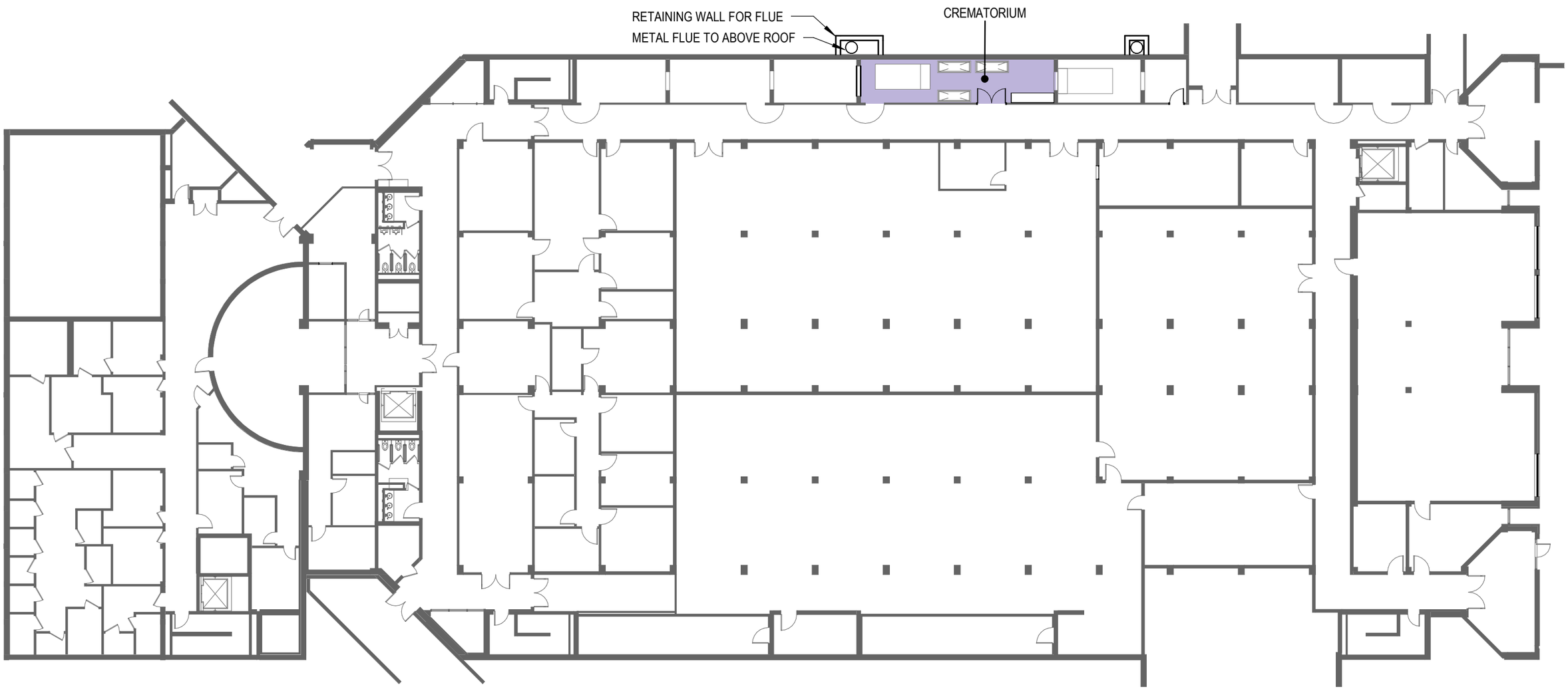
Refer to the architectural narrative for additional equipment to be provided by Contractor.

F. PROGRAM TEST FIT DIAGRAMS

Based on the program requirements and the proposed existing space available in the GEB, several Test Fit Concepts were developed for review and evaluation by UTHSC. The Concept options were evaluated based on program requirements, including the project goals for success. The Test Fit Concepts included in this report are identified as potential approaches. The Test Fits are not the "design", but an exercise to confirm the proposed program will fit well in the proposed GEB. The test fits also indicate potential space adjacency and flow for Students, Faculty, Staff and equipment. The actual design will be developed in the next phase of the project, following approval to move forward by UTHSC. The program requirements and Test Fit Concept were used as the basis of developing the Preliminary Estimate of Construction Cost.



Secured zones and flow diagram



UNIVERSITY OF TENNESSEE GROSS ANATOMY LABORATORY RENOVATION

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

BASEMENT LEVEL PROGRAM TEST FIT DIAGRAM

3/64" = 1'-0"

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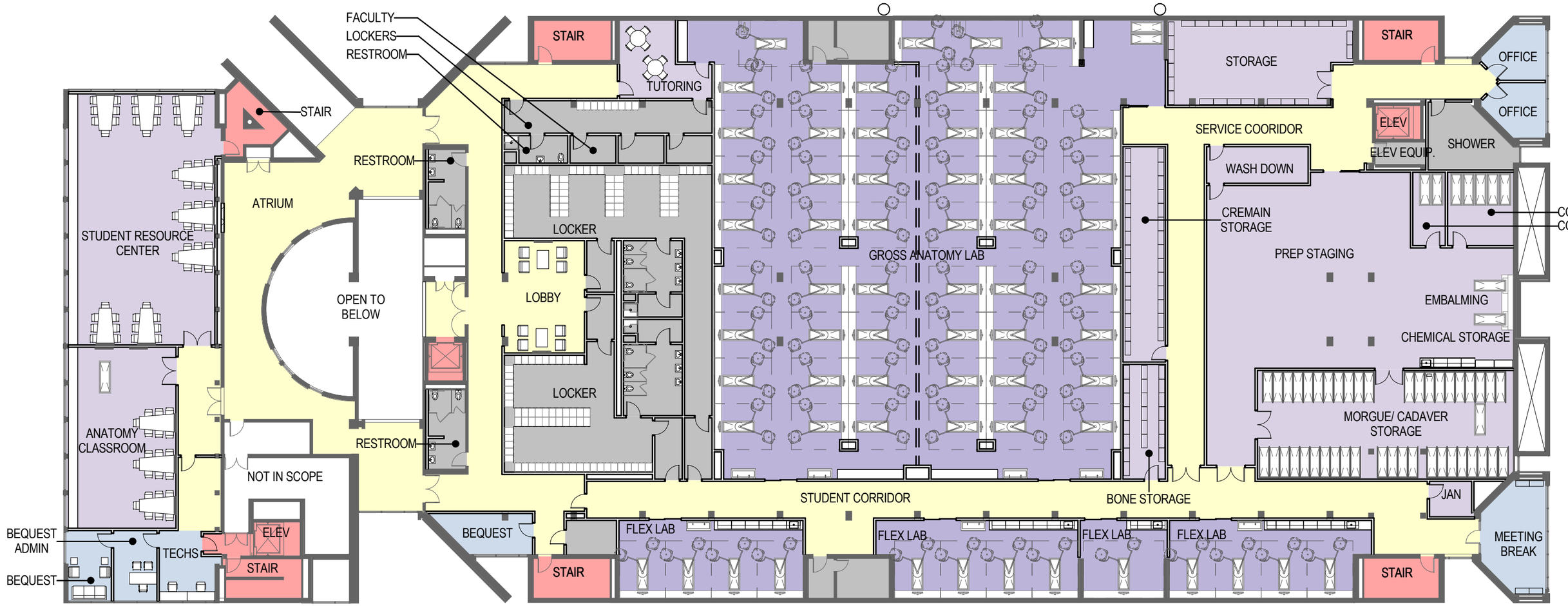
OH+K



UNIVERSITY OF TENNESSEE GROSS ANATOMY LABORATORY RENOVATION

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

THIRD FLOOR PROGRAM TEST FIT DIAGRAM - Option A

3/64" = 1'-0"

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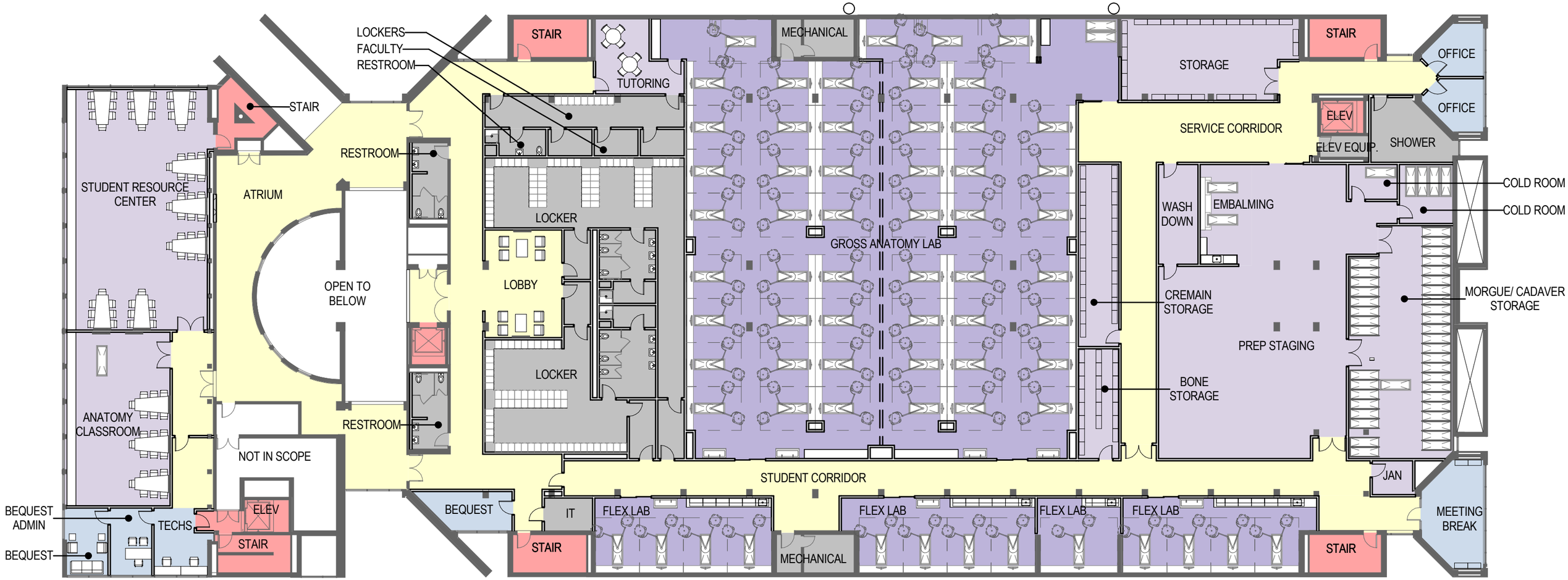

UNIVERSITY OF TENNESSEE GROSS ANATOMY LABORATORY RENOVATION

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

THIRD FLOOR PROGRAM TEST FIT DIAGRAM - Option B

3/64" = 1'-0"

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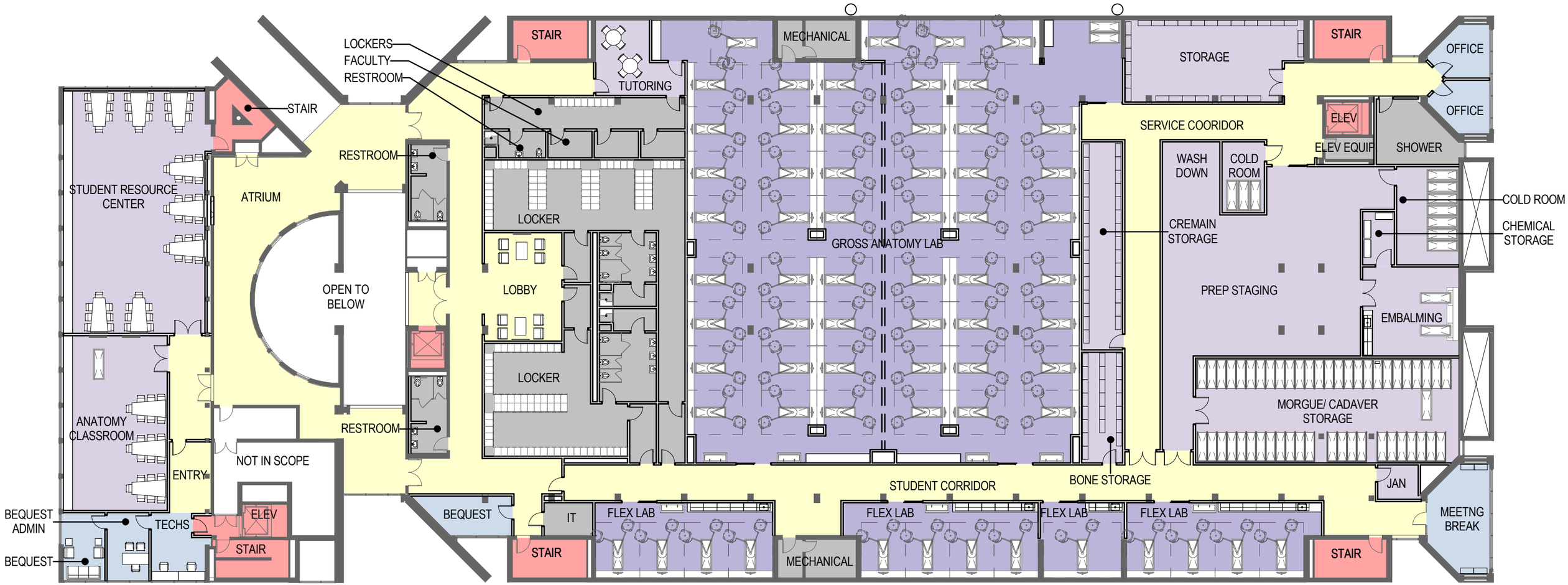

UNIVERSITY OF TENNESSEE GROSS ANATOMY LABORATORY RENOVATION

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

THIRD FLOOR PROGRAM TEST FIT DIAGRAM - Option C

3/64" = 1'-0"

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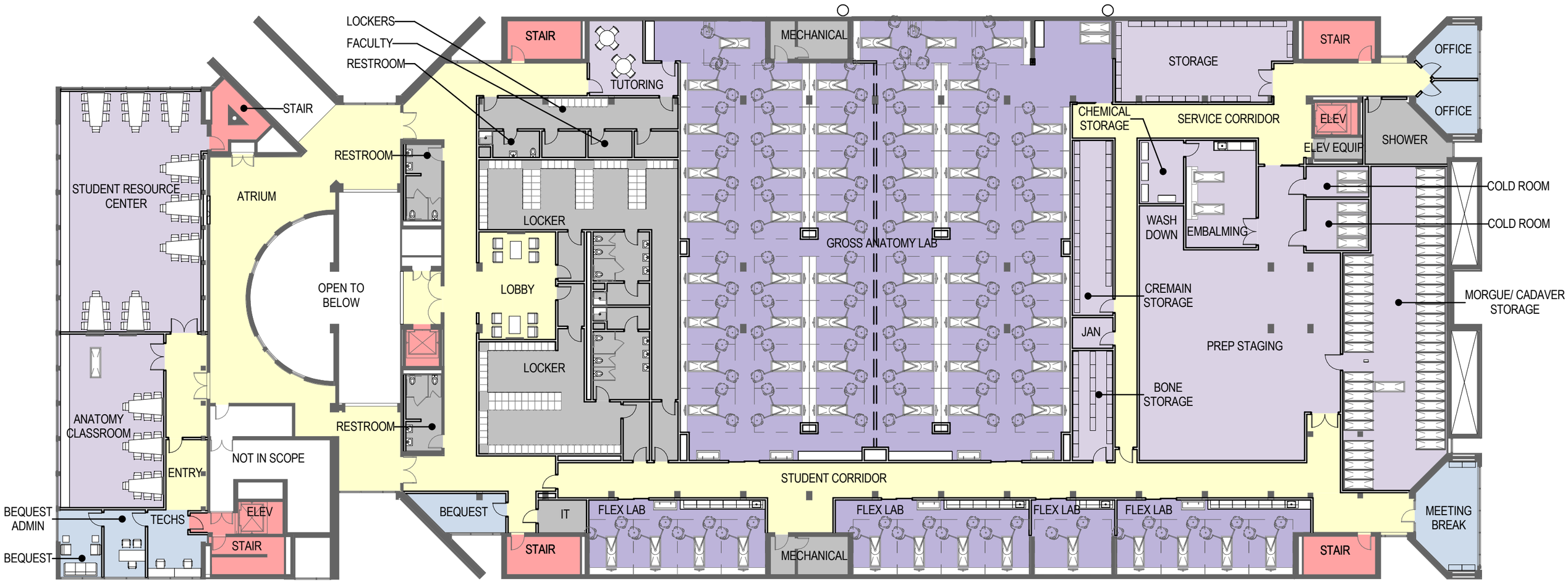

UNIVERSITY OF TENNESSEE GROSS ANATOMY LABORATORY RENOVATION

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

THIRD FLOOR PROGRAM TEST FIT DIAGRAM - Option D

3/64" = 1'-0"

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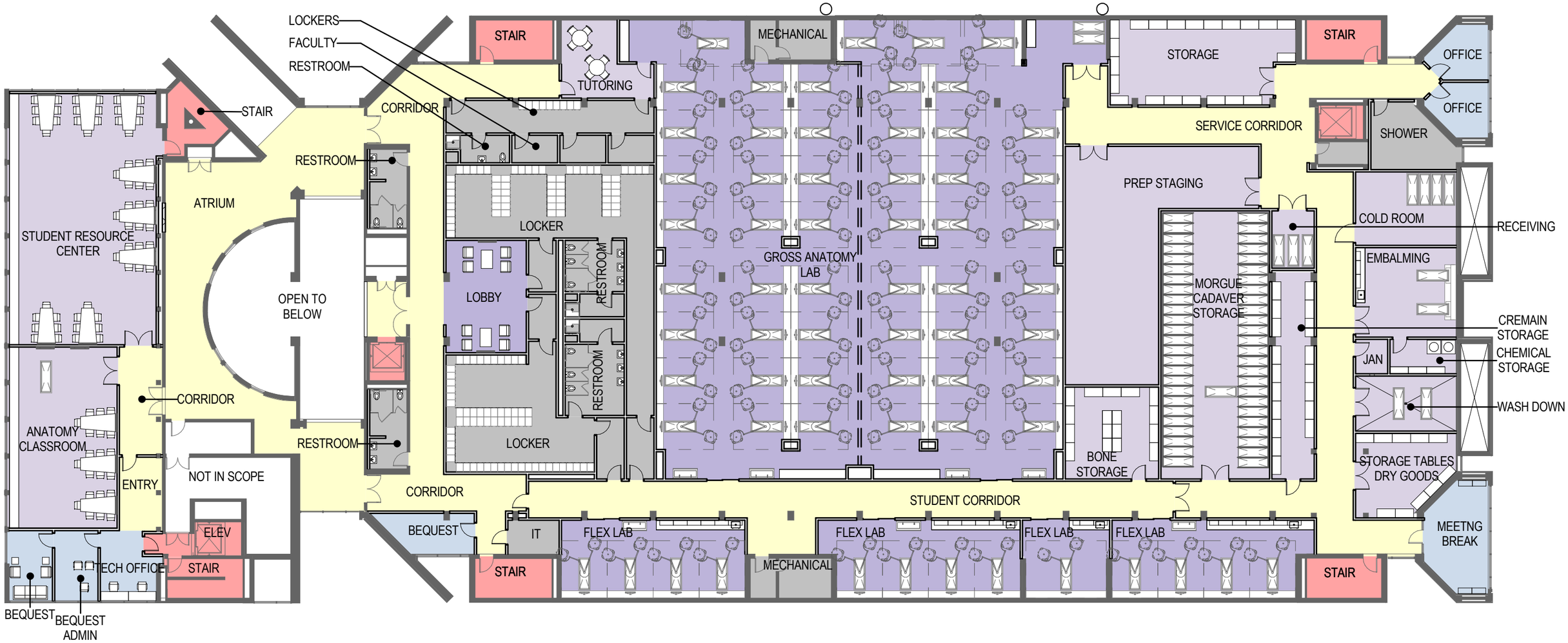

UNIVERSITY OF TENNESSEE GROSS ANATOMY LABORATORY RENOVATION

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

THRID FLOOR PROGRAM TEST FIT DIAGRAM Option E

3/64" = 1'-0"

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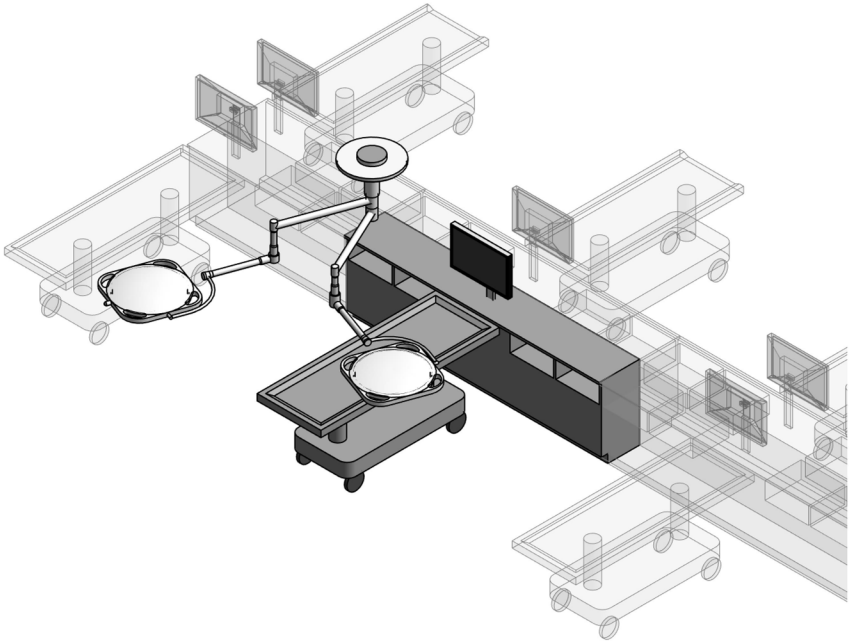
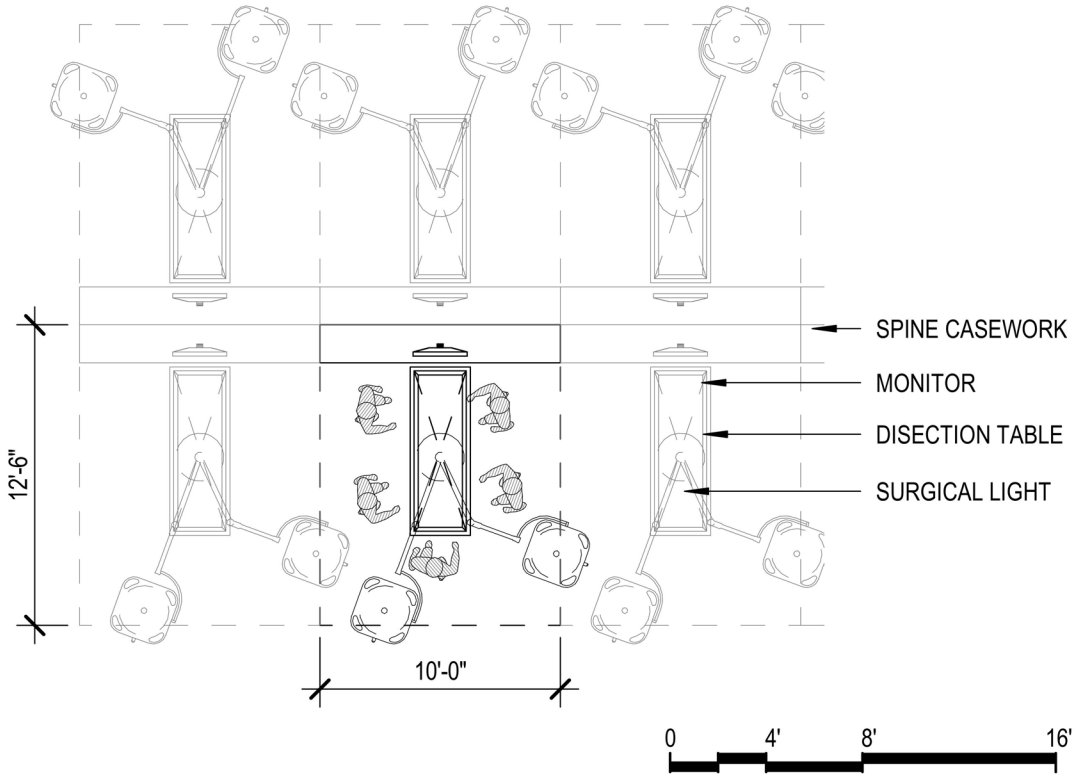
G. ROOM DATA SHEETS

The room data sheets provide a diagrammatic plan to indicate potential layout and define the specific requirements for each space. The information is based on requirements defined by UTHSC and Design Team development of the requirements for each space based on function.

GROSS ANATOMY LAB





Space Name: ANATOMY LAB
Space ID 1.01
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	250

MECHANICAL	
Temperature	
68°-75° ± 2°F	
72°F ± 2°F	
Other	62°F
Humidity	
50%- 25%± 5%	X
Uncontrolled	
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	X
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	HEPA Supply
Other	
Low Exhaust	X
Diffuse Supply	X
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	X
Downdraft Table	
Dip Tanks	X
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	Spine arrangement*
Stainless Steel	X
Powder coated Metal	
Work Surface	
Stainless Steel	X
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	X
Shelves	X
Skeleton Cabinets	

PLUMBING	
Sinks	
Utility w/ garbells, drainboards	2 total
ADA	X
Scullery	
Triple basin	X
Handwash	6 total
Controls	
Sensor touchless	ADA
Foot Control	X
Knee Control	
Wrist Blade	
Floor Drains	X
Safety Shower	X
Eyewash/fire Extinguisher	X
Shower/ Eyewash	
Drench Hose	X
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	Note 1
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	X
Overhead Power Reel	
Wireless Data	X
Ethernet Data port	
Data Wall Outlet	X
Other	Note 1

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	X
30-60 fc at bench/desk	
Task Lighting	
Darkenable or Dimmable	X
Special Lighting	
Natural Daylight	X
Surgical Lights	
Single Head	
Double Head	X
Camera	
Occupancy Sensor	X

ADJACENCY CRITERIA	
Primary Adjacency	Lockers
Secondary Adjacency	Student Resource

AV	
Audio System	Note 2, 3
Video Recording/Broadcast	Note 2, 3
Monitors	Note 4
Camera Mobile Cart	X
Camera Arm Mounted	
White Board	Multiple
Smart Board	
Computer System	X
Other	

ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	X
Crash Rails	X
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	X
Carpet	
Other	
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	
Acoustic Tile	Note 5
Moisture Resistant Tiles	X
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	42" x 96"
Type	Metal
Operable Wall	X
Vision Panel	X
Hardware	Keyed Lock
Security Card Reader	X
Other	ICU Sliding

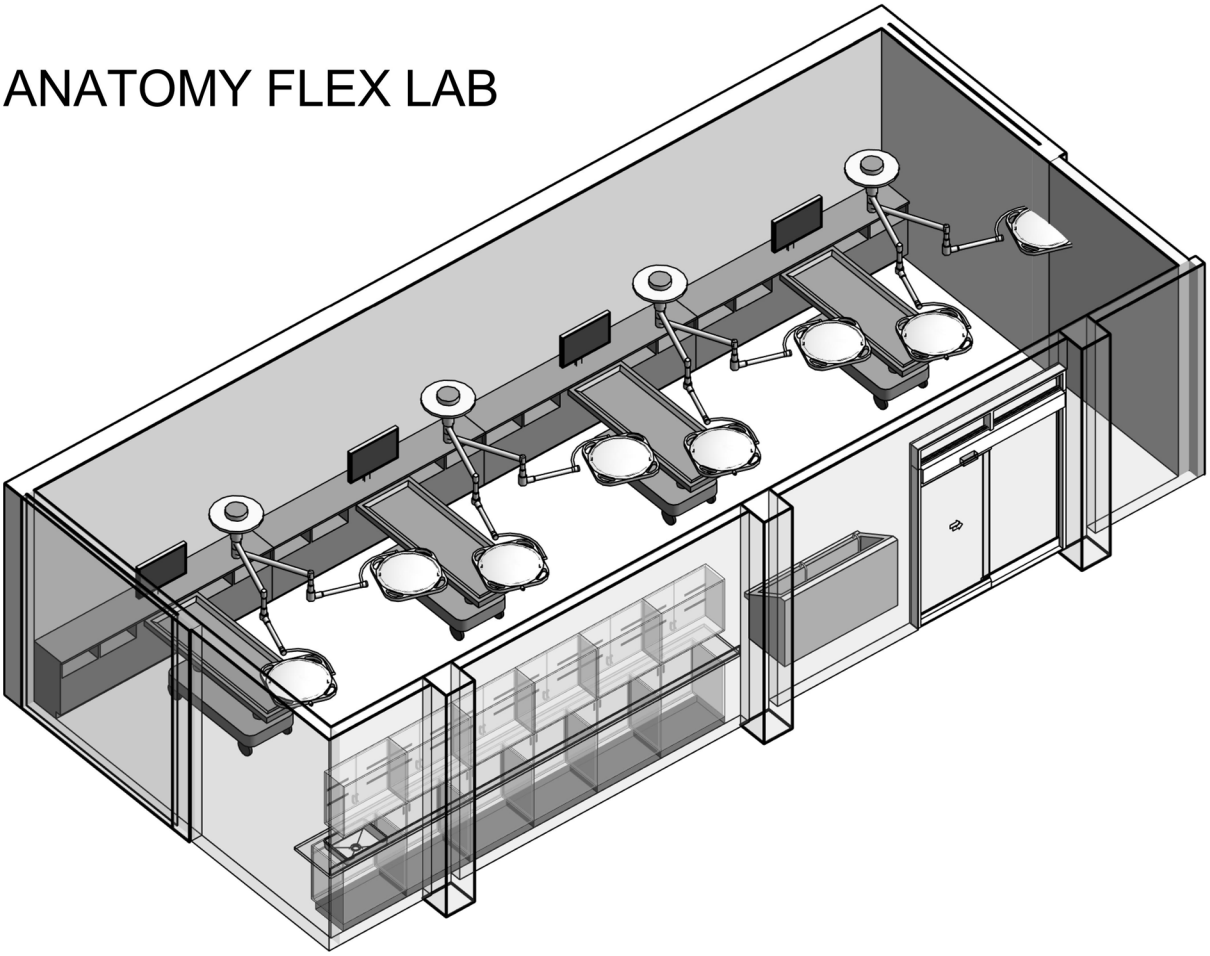
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	X

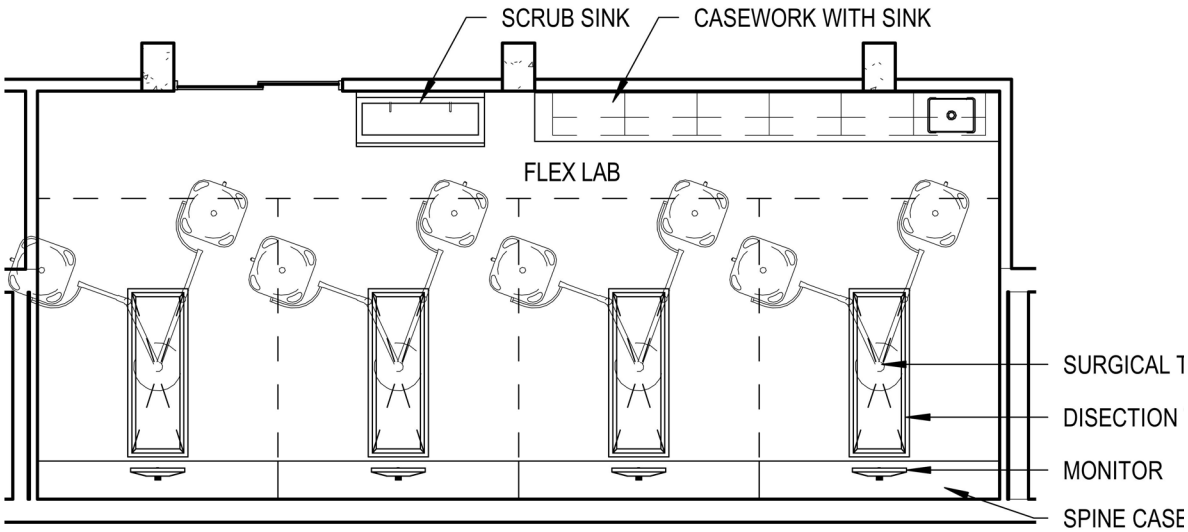
REMARKS:

* Casework spine arrangement to allow faculty to move between aisles. Layout to allow work at both ends of anatomy table.

1. Provide at each table - (2) 120v Duplex outlet and Ethernet Data connections.
2. Provide A/V connection at instruction tables for video and audio connections
3. Provide A/V system for individual controls of monitors for local computer connection and broadcast of video from central point.
4. Provide monitor with computer, wireless mouse and wireless keyboard, monitor to be connected to A/V system for video
5 Provide smooth scrub able tile suitable for wet locations.
6. Lab should be divided in two halves. Each half should be independently securable

ANATOMY FLEX LAB





0 4' 8' 16'

Space Name: ANATOMY FLEX LAB
Space ID 1.02
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	20

MECHANICAL	
Temperature	
68°-75° ± 2°F	
72°F ± 2°F	
Other	62°F
Humidity	
50%- 25%± 5%	X
Uncontrolled	
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	X
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	HEPA Supply
Other	
Low Exhaust	X
Diffuse Supply	X
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	X
Downdraft Table	
Dip Tanks	X
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	Spine arrangement*
Stainless Steel	X
Powder coated Metal	
Work Surface	
Stainless Steel	X
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	X
Shelves	X
Skeleton Cabinets	

PLUMBING	
Sinks	
Utility w/ garbells drainboards	X
ADA	X
Scullery	
Triple basin	X
Handwash	X
Controls	
Sensor touchless	ADA
Foot Control	X
Knee Control	
Wrist Blade	
Floor Drains	X
Safety Shower	X
Eyewash/fire Extinguisher	X
Shower/ Eyewash	
Drench Hose	X
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	Note 1
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	X
Overhead Power Reel	
Wireless Data	X
Ethernet Data port	
Data Wall Outlet	X
Other	Note 1

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	X
30-60 fc at bench/desk	
Task Lighting	
Darkenable or Dimmable	X
Special Lighting	
Natural Daylight	X
Surgical Lights	
Single Head	
Double Head	X
Camera	
Occupancy Sensor	X

ADJACENCY CRITERIA	
Primary Adjacency	Lockers
Secondary Adjacency	Student Resource

AV	
Audio System	Note 2, 3
Video Recording/Broadcast	Note 2, 3
Monitors	Note 4
Camera Mobile Cart	X
Camera Arm Mounted	
White Board	Multiple
Smart Board	
Computer System	X
Other	

ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	X
Crash Rails	X
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	X
Carpet	
Other	
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	
Acoustic Tile	Note 5
Moisture Resistant Tiles	X
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	42" x 96"
Type	Metal
Operable Wall	
Vision Panel	X
Hardware	Keyed Lock
Security Card Reader	X
Other	ICU Sliding

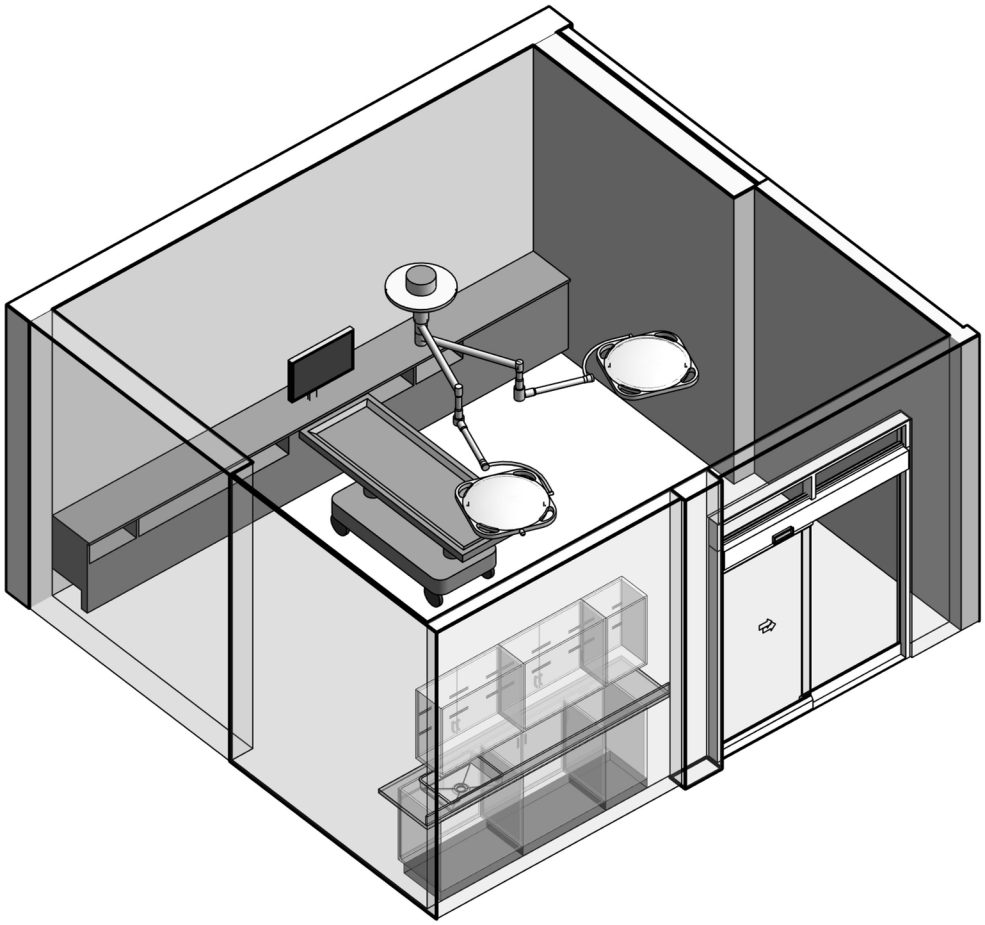
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	X

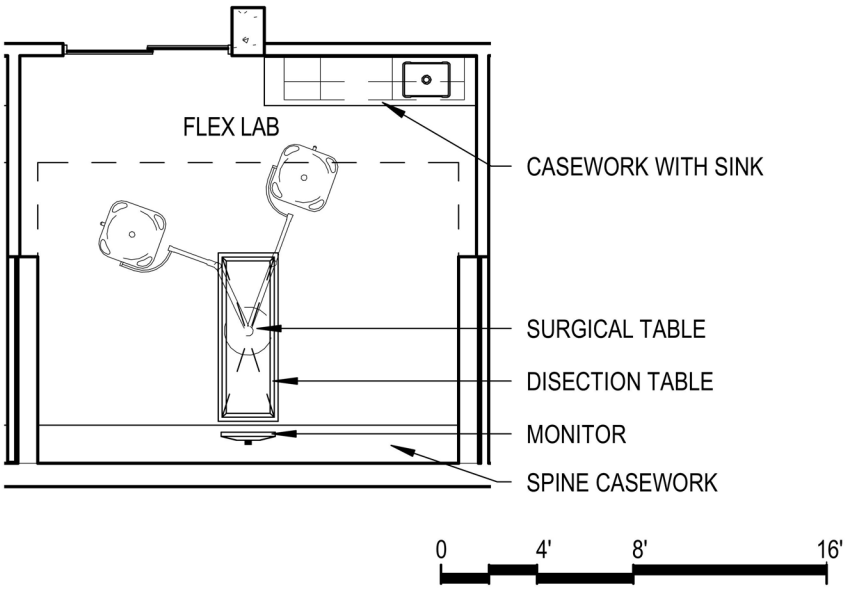
REMARKS:

* Casework spine arrangement to allow faculty to move between aisles. Layout to allow work at both ends of anatomy table.

1. Provide at each table - (2) 120v Duplex outlet and Ethernet Data connections.
2. Provide A/V connection at instruction tables for video and audio connections
3. Provide A/V system for individual controls of monitors for local computer connection and broadcast of video from central point.
4. Provide monitor with computer, wireless mouse and wireless keyboard, monitor to be connected to A/V system for video
5 Provide smooth scrub able tile suitable for wet locations.
6. Lab should be divided in two halves. Each half should be independently securable

SMALL ANATOMY FLEX LAB





Space Name: SMALL ANATOMY FLEX LAB
Space ID 1.03
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	2 to 5

MECHANICAL	
Temperature	
68°-75° ± 2°F	
72°F ± 2°F	
Other	62°F
Humidity	
50%- 25%± 5%	X
Uncontrolled	
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	X
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	HEPA Supply
Other	
Low Exhaust	X
Diffuse Supply	X
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	X
Downdraft Table	
Dip Tanks	X
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	Spine arrangement*
Stainless Steel	X
Powder coated Metal	
Work Surface	
Stainless Steel	X
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	X
Shelves	X
Skeleton Cabinets	

PLUMBING	
Sinks	
Utility w/ garbells drainboards	X
ADA	X
Scullery	
Triple basin	X
Handwash	X
Controls	
Sensor touchless	ADA
Foot Control	X
Knee Control	
Wrist Blade	
Floor Drains	X
Safety Shower	X
Eyewash/fire Extinguisher	X
Shower/ Eyewash	
Drench Hose	X
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	Note 1
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	X
Overhead Power Reel	
Wireless Data	X
Ethernet Data port	
Data Wall Outlet	X
Other	Note 1

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	X
30-60 fc at bench/desk	
Task Lighting	
Darkenable or Dimmable	X
Special Lighting	
Natural Daylight	X
Surgical Lights	
Single Head	
Double Head	X
Camera	
Occupancy Sensor	X

ADJACENCY CRITERIA	
Primary Adjacency	Lockers
Secondary Adjacency	Student Resource

AV	
Audio System	Note 2, 3
Video Recording/Broadcast	Note 2, 3
Monitors	Note 4
Camera Mobile Cart	X
Camera Arm Mounted	
White Board	X
Smart Board	
Computer System	X
Other	

ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	X
Crash Rails	X
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	X
Carpet	
Other	
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	
Acoustic Tile	Note 5
Moisture Resistant Tiles	X
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	42" x 96"
Type	Metal
Operable Wall	
Vision Panel	X
Hardware	Keyed Lock
Security Card Reader	X
Other	ICU Sliding

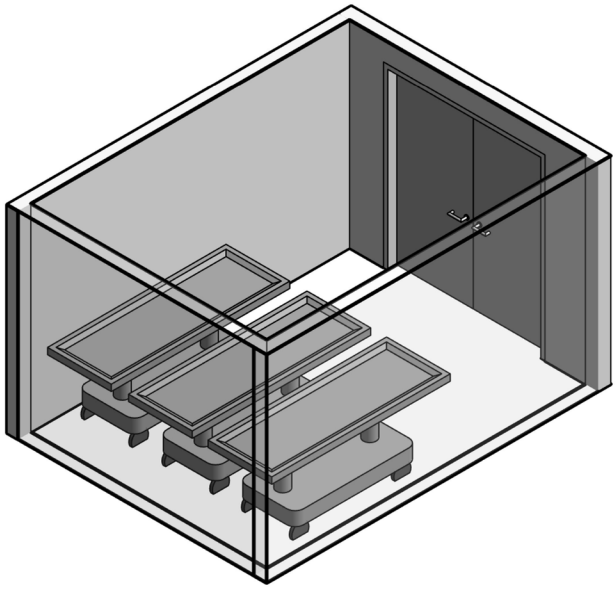
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	X

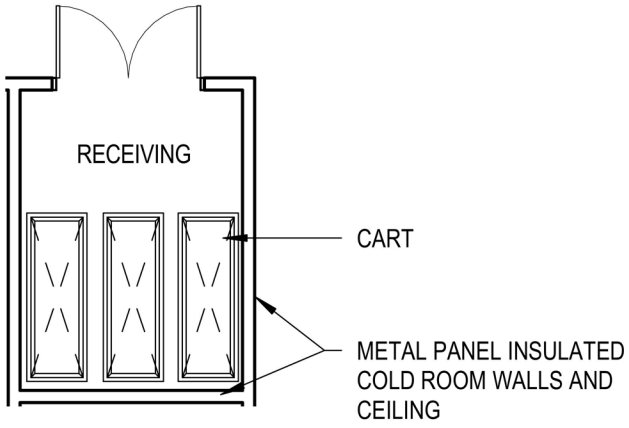
REMARKS:

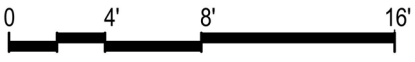
* Casework spine arrangement to allow faculty to move between aisles. Layout to allow work at both ends of anatomy table.

1. Provide at each table - (2) 120v Duplex outlet and Ethernet Data connections.
2. Provide A/V connection at instruction tables for video and audio connections
3. Provide A/V system for individual controls of monitors for local computer connection and broadcast of video from central point.
4. Provide monitor with computer, wireless mouse and wireless keyboard, monitor to be connected to A/V system for video
5. Provide smooth scrub able tile suitable for wet locations.
6. Lab should be divided in two halves. Each half should be independently securable

RECEIVING




RECEIVING
CART
METAL PANEL INSULATED
COLD ROOM WALLS AND
CEILING


0
4'
8'
16'

Space Name: Receiving
Space ID 2.01
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	1 to 2

MECHANICAL	
Temperature	
68°-75° ± 2°F	
72°F ± 2°F	X
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	Gurney/Table

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	

PLUMBING	
Sinks	
Type	
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	X
Ethernet Data port	
Data Wall Outlet	X
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc	X
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	

ADJACENCY CRITERIA	
Primary Adjacency	Loading Dock
Secondary Adjacency	Service elevator

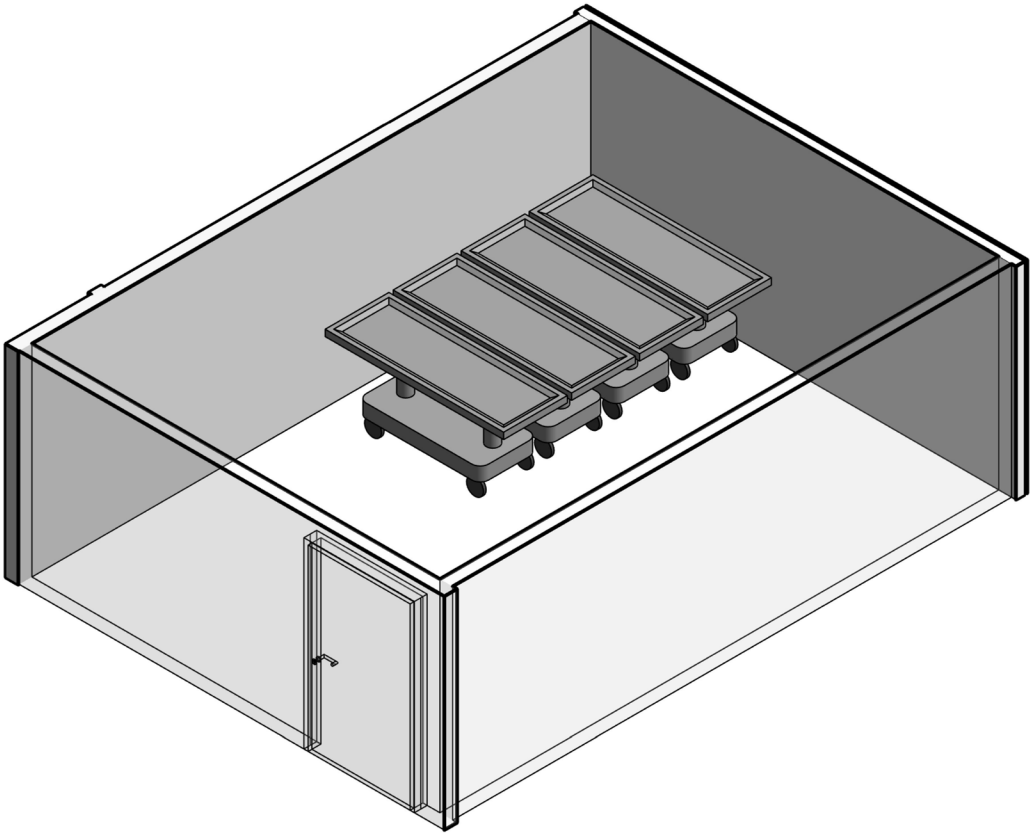
AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	
Smart Board	
Computer System	
Other	

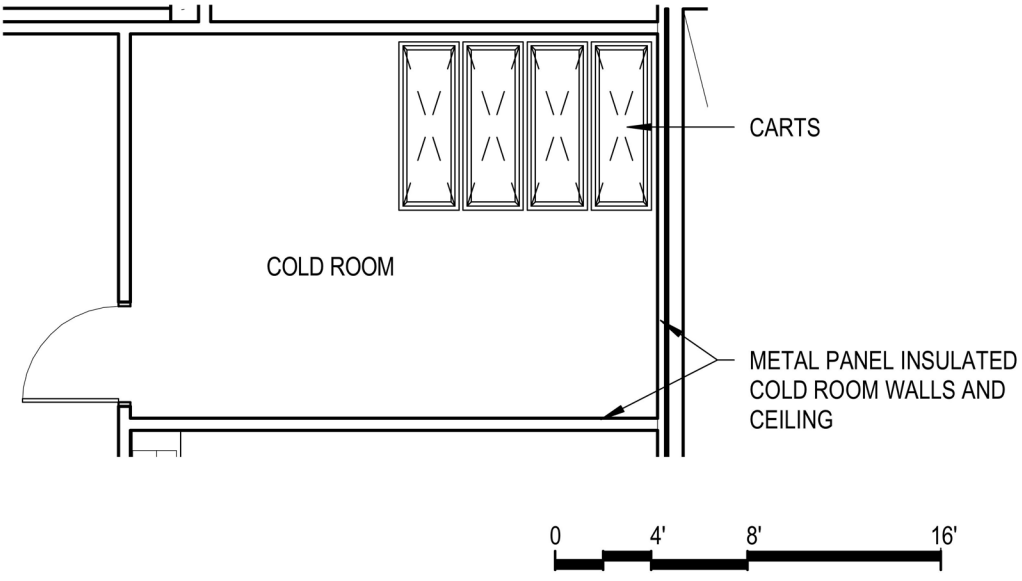
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	
Other	CMU
Wall Protection	
Corner Guards	
Crash Rails	X
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	X
Resinous/ Epoxy	
Carpet	
Other	
Base	
4" Rubber	
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	
Moisture Resistant Tiles	
Gyp. Board	
Height	
Other	
Doors	
Size	72" x 84"
Type	Metal
Operable Wall	
Vision Panel	
Hardware	
Security Card Reader	X
Other	

SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

REMARKS:

COLD ROOM




CARTS
COLD ROOM
METAL PANEL INSULATED
COLD ROOM WALLS AND
CEILING
0
4'
8'
16'

Space Name: Cold Room
Space ID 2.02
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	8-10 donors

MECHANICAL	
Temperature	
68°-75° ± 2°F	
72°F ± 2°F	
Other	4°C
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	X
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	

PLUMBING	
Sinks	
Type	
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	X
Ethernet Data port	
Data Wall Outlet	X
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	

ADJACENCY CRITERIA	
Primary Adjacency	Morgue
Secondary Adjacency	Service Elevator

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	
Smart Board	
Computer System	
Other	

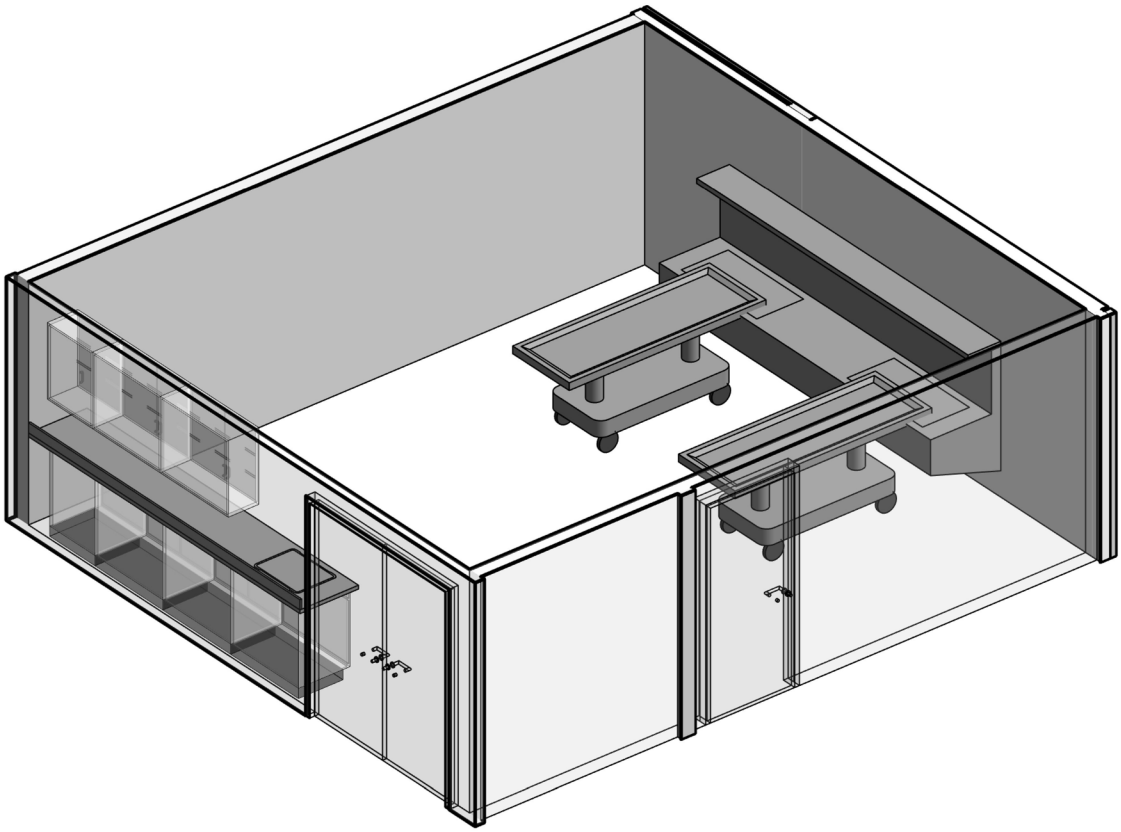
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	
Other	Note 1
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	
Other	Note 2
Base	
4" Rubber	
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	
Moisture Resistant Tiles	X
Gyp. Board	
Height	8
Other	Note 1
Doors	
Size	42" x 84"
Type	Metal
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	X
Other	

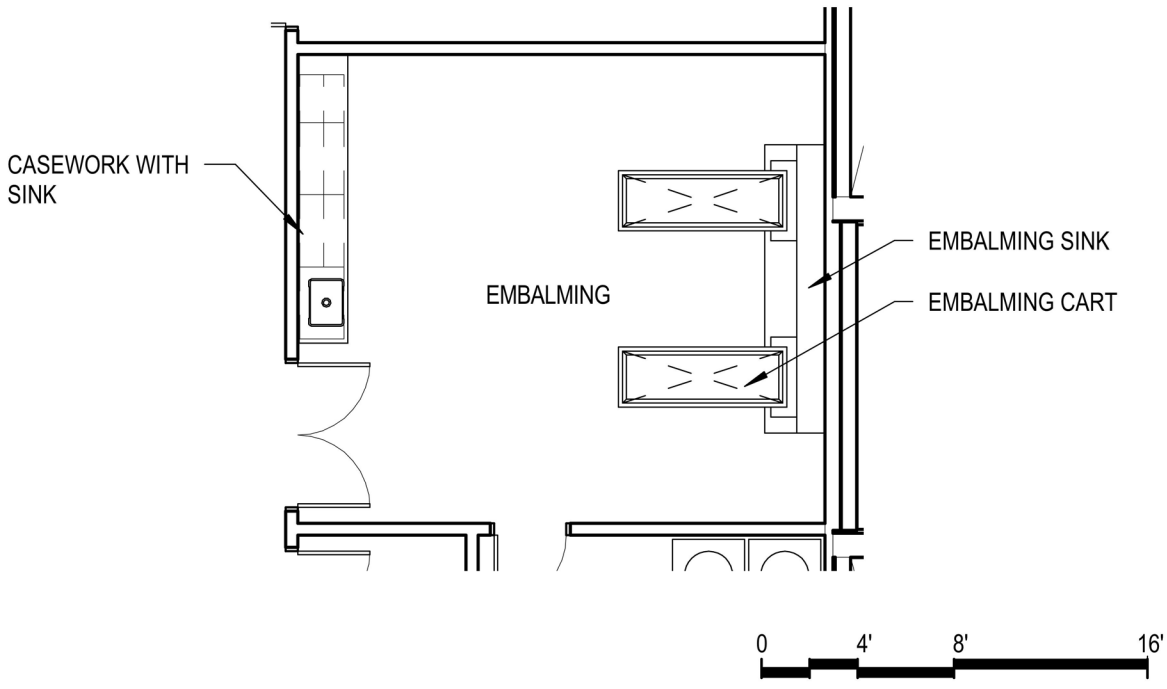
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

REMARKS:

1. 4" insulated metal face with foam core at floor, walls and ceiling. Prosection storage area
2. Aluminum checkerboard flooring

EMBALMING




CASEWORK WITH SINK
EMBALMING
EMBALMING SINK
EMBALMING CART
0
4'
8'
16'

Space Name: Embalming Room
Space ID 2.03
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	1 to 2

MECHANICAL	
Temperature	
68°-75° ± 2°F	
72°F ± 2°F	
Other	62°F
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	X
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	HEPA Supply
Other	
Low Exhaust	X
Diffuse Supply	X
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	Note 2

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	X
Powder coated Metal	
Work Surface	
Stainless Steel	X
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	X
Shelves	
Skeleton Cabinets	X

PLUMBING	
Sinks	
Type	Note 3
ADA	
Utility w/ garbells	X
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	X
Knee Control	
Wrist Blade	X
Floor Drains	X
Safety Shower	X
Eyewash/fire Extinguisher	
Shower/ Eyewash	X
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	X
Ethernet Data port	
Data Wall Outlet	X
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	X
30-60 fc at bench/desk	
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	X
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	Morgue
Secondary Adjacency	Chemical Storage

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	X
Smart Board	
Computer System	
Other	

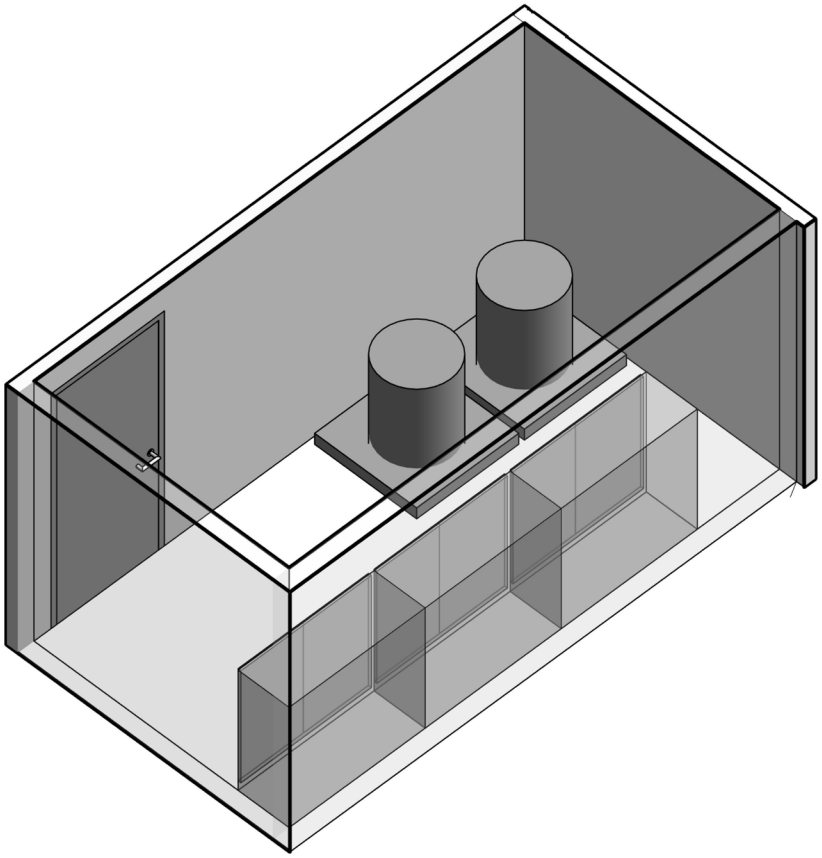
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	X
Crash Rails	X
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	X
Carpet	
Other	
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	
Acoustic Tile	Note 1
Moisture Resistant Tiles	X
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	48" x 96"
Type	Metal
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	X
Other	

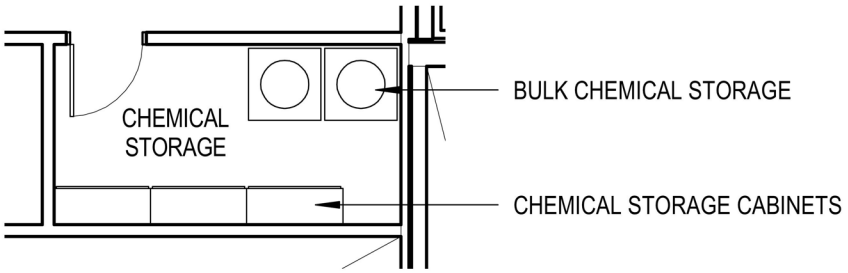
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

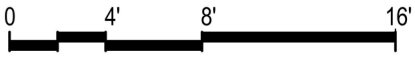
REMARKS:

1. Provide smooth scrub able tile suitable for wet locations.
2. Two vented embalming table and sink. Provide snorkels over each embalming table.
3 Embalming sink with each embalming table.

CHEMICAL STORAGE







Space Name: Chemical Storage
Space ID 2.04
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	1 to 2

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	X
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	X
Powder coated Metal	
Work Surface	
Stainless Steel	X
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	
Other	Note 1

PLUMBING	
Sinks	
Typical	X
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	X
Eyewash/fire Extinguisher	X
Shower/ Eyewash	X
Drench Hose	X
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	X
30-60 fc at bench/desk	
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	Embalming Room
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	X
Smart Board	
Computer System	
Other	

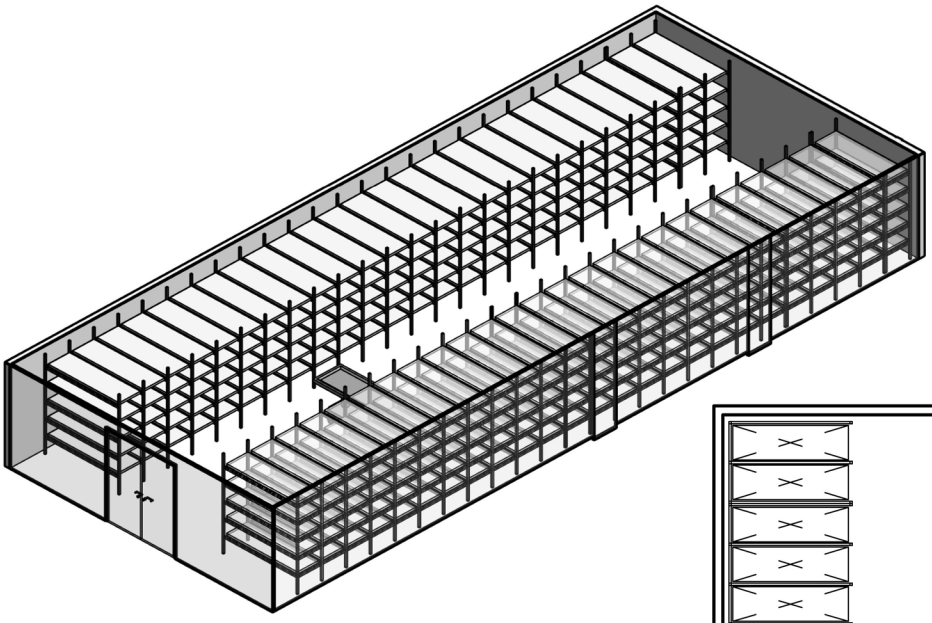
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	X
Crash Rails	X
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	X
Carpet	
Other	
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	
Acoustic Tile	Note 2
Moisture Resistant Tiles	
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	42" x 96"
Type	Metal
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	X
Other	

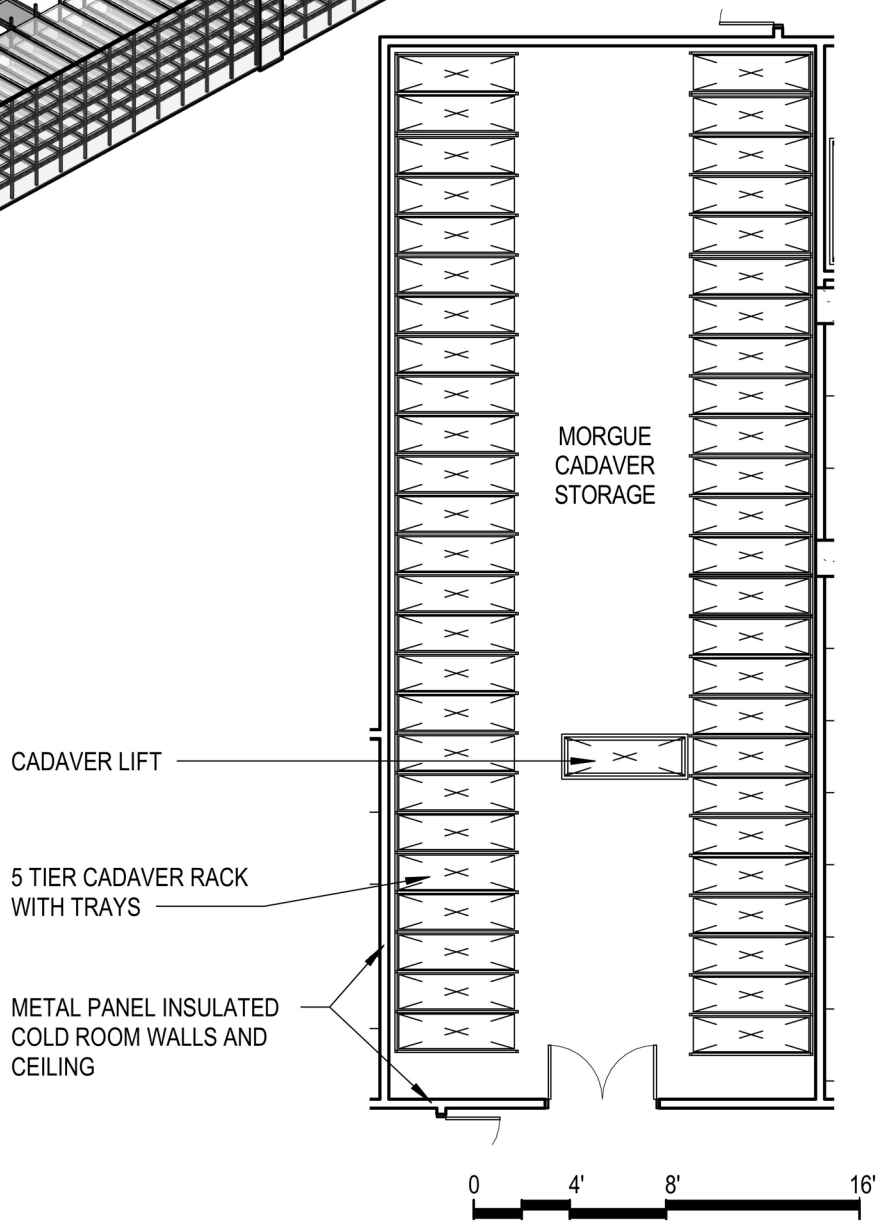
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

REMARKS:

1. Chemical Storage cabinets
2. Provide smooth scrub able tile suitable for wet locations.

MORGUE CADAVER STORAGE





Space Name: Cadaver Storage
Space ID 2.05
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	250 donors

MECHANICAL	
Temperature	
68°-75° ± 2°F	
72°F ± 2°F	
Other	4°C
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	X
Other	Cadaver Lift

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	

PLUMBING	
Sinks	
Type	
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	X
Ethernet Data port	
Data Wall Outlet	X
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	

ADJACENCY CRITERIA	
Primary Adjacency	Morgue
Secondary Adjacency	Service Elevator

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	
Smart Board	
Computer System	
Other	

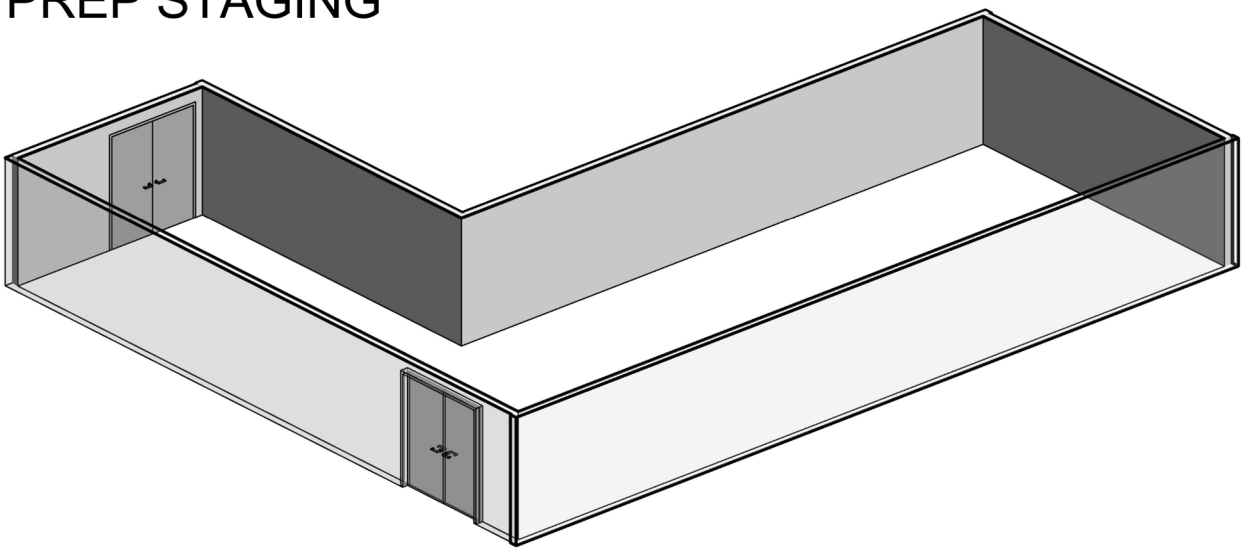
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	
Other	Note 1
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	
Other	Note 2
Base	
4" Rubber	
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	
Moisture Resistant Tiles	X
Gyp. Board	
Height	8
Other	Note 1
Doors	
Size	42" x 84"
Type	Metal
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	X
Other	

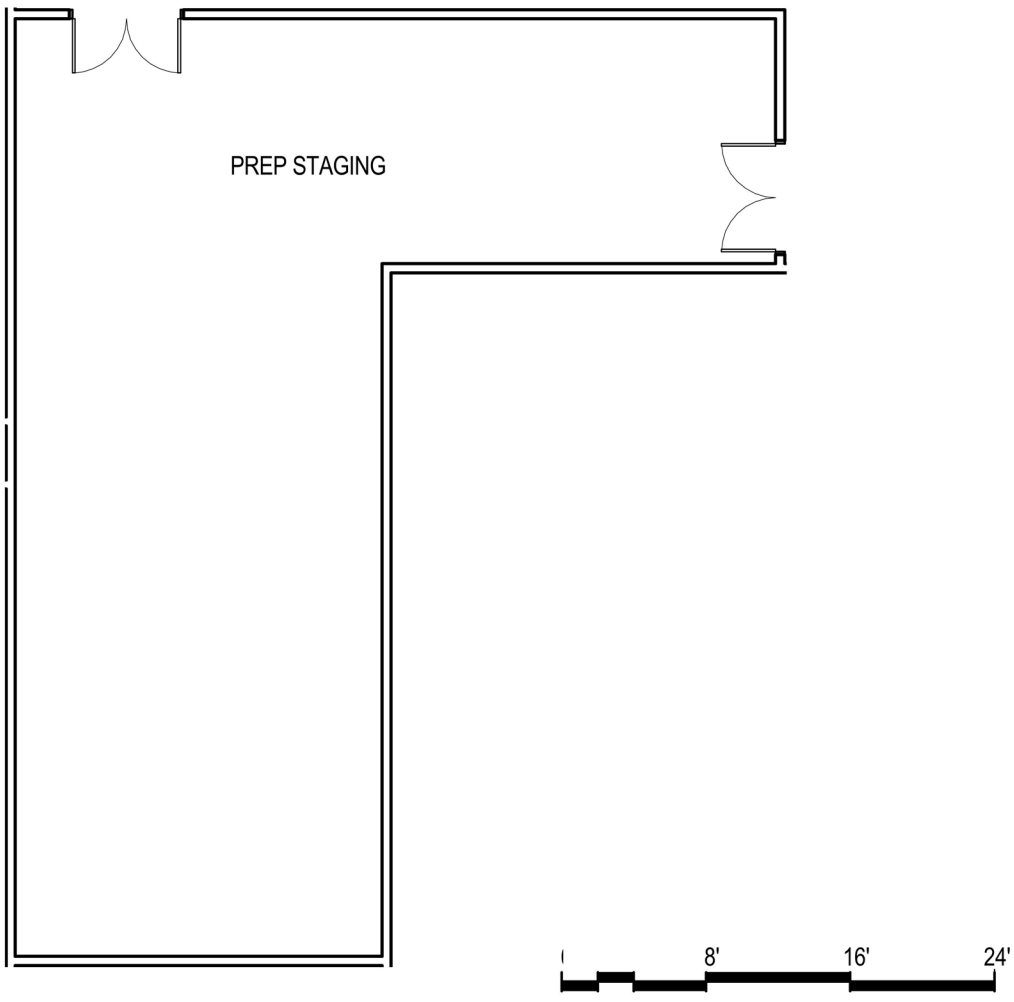
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

REMARKS:

1. 4" insulated metal face with foam core at floor, walls and ceiling
2. Aluminum checkerboard flooring

PREP STAGING





Space Name: Prep/Staging Area
Space ID 2.06
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	X
24 hours/day	

OCCUPANY	
No. Of Occupants	2, 25-20 tables

MECHANICAL	
Temperature	
68°-75° ± 2°F	
72°F ± 2°F	
Other	65°F
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	X
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	HEPA Supply
Other	
Low Exhaust	
Diffuse Supply	X
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	X
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	X
Work Surface	
Stainless Steel	X
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	X
Shelves	
Skeleton Cabinets	
Other	Wire shelving

PLUMBING	
Sinks	
Type	
ADA	
Scullery	X
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	X
Floor Drains	X
Safety Shower	
Eyewash/fire Extinguisher	X
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	X
Ethernet Data port	
Data Wall Outlet	X
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	X
30-60 fc at bench/desk	
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	Anatomy Lab
Secondary Adjacency	Morgue

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	X
Smart Board	
Computer System	
Other	

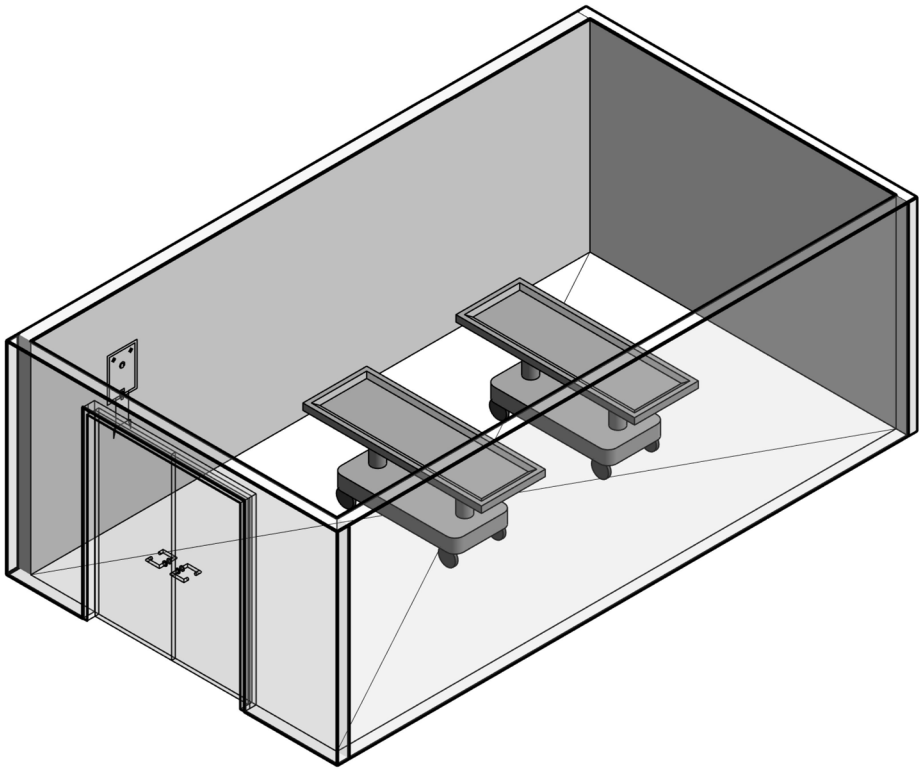
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	X
Crash Rails	X
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	X
Carpet	
Other	
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	
Acoustic Tile	Note 1
Moisture Resistant Tiles	X
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	48" x 96"
Type	Metal
Operable Wall	
Vision Panel	X
Hardware	Keyed Lock
Security Card Reader	X
Other	

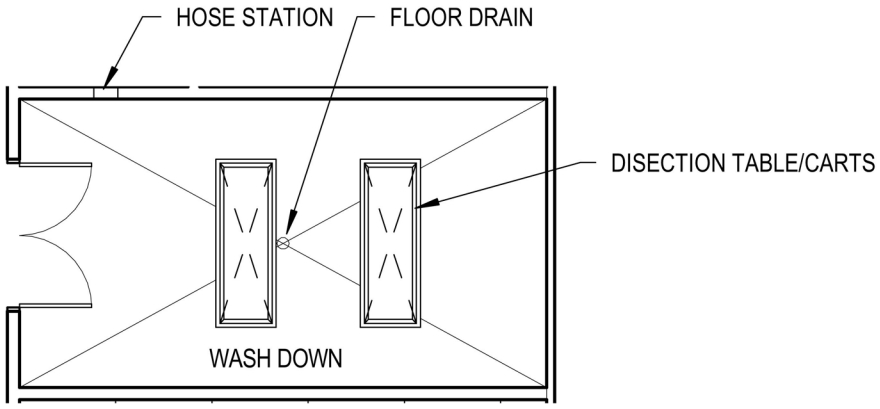
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

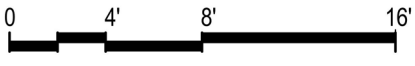
REMARKS:

1. Provide smooth scrub able tile suitable for wet locations.
2.

WASH DOWN




HOSE STATION
FLOOR DRAIN
DISECTION TABLE/CARTS
WASH DOWN


0
4'
8'
16'

Space Name: Wash Down Room
Space ID 2.07
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	X
14 hours/day	
24 hours/day	

OCCUPANY	
No. Of Occupants	1

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	X
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	
Other	High Moisture
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	Note 1

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	

PLUMBING	
Sinks	
Type	
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	X
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	X
Mop Sink/ Wash-down Reel	X

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	Note 2
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	X, Note 3
30-60 fc at bench/desk	
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	
Smart Board	
Computer System	
Other	

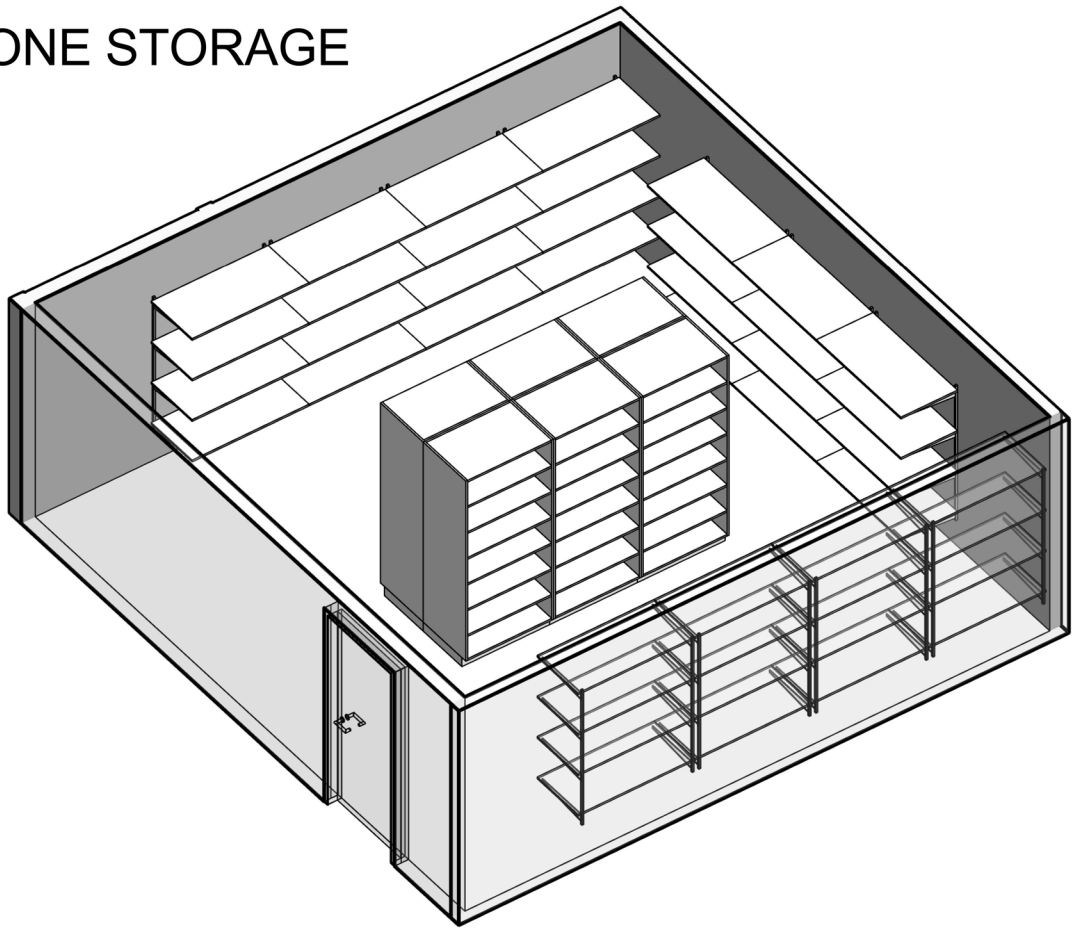
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	X
Crash Rails	X
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	HT, Note 4
Carpet	
Other	
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	X
Acoustic Tile	
Moisture Resistant Tiles	
Gyp. Board	X
Height	10'-0"
Other	
Doors	
Size	42" x 96"
Type	Fiberglass
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	
Other	

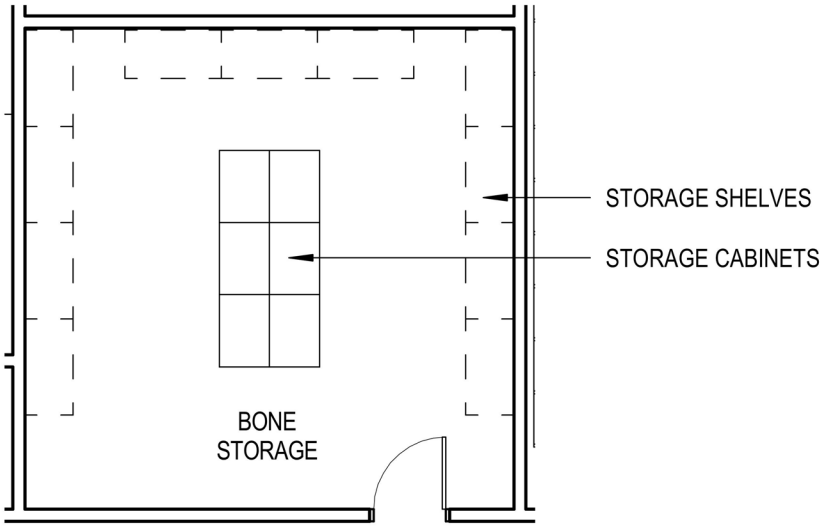
SECURITY	
Locks	X
Card Access	
24/7 Student Access	

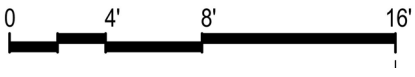
REMARKS:

1. Hot Water Washdown sprayer/ retracting hose reel
2. Provide cover plates on all devices, Wet Location
3. Dampproof light fixtures
4. HT -Thermal shock resistant, slip resistant

BONE STORAGE







Space Name: Storage - Bones
Space ID 2.08
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	X
14 hours/day	
24 hours/day	

OCCUPANY	
No. Of Occupants	

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	X
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	Wire shelving

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	
Other	Note 2

PLUMBING	
Sinks	
Type	
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	Anatomy Labs
Secondary Adjacency	Flex Labs

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	X
Smart Board	
Computer System	
Other	

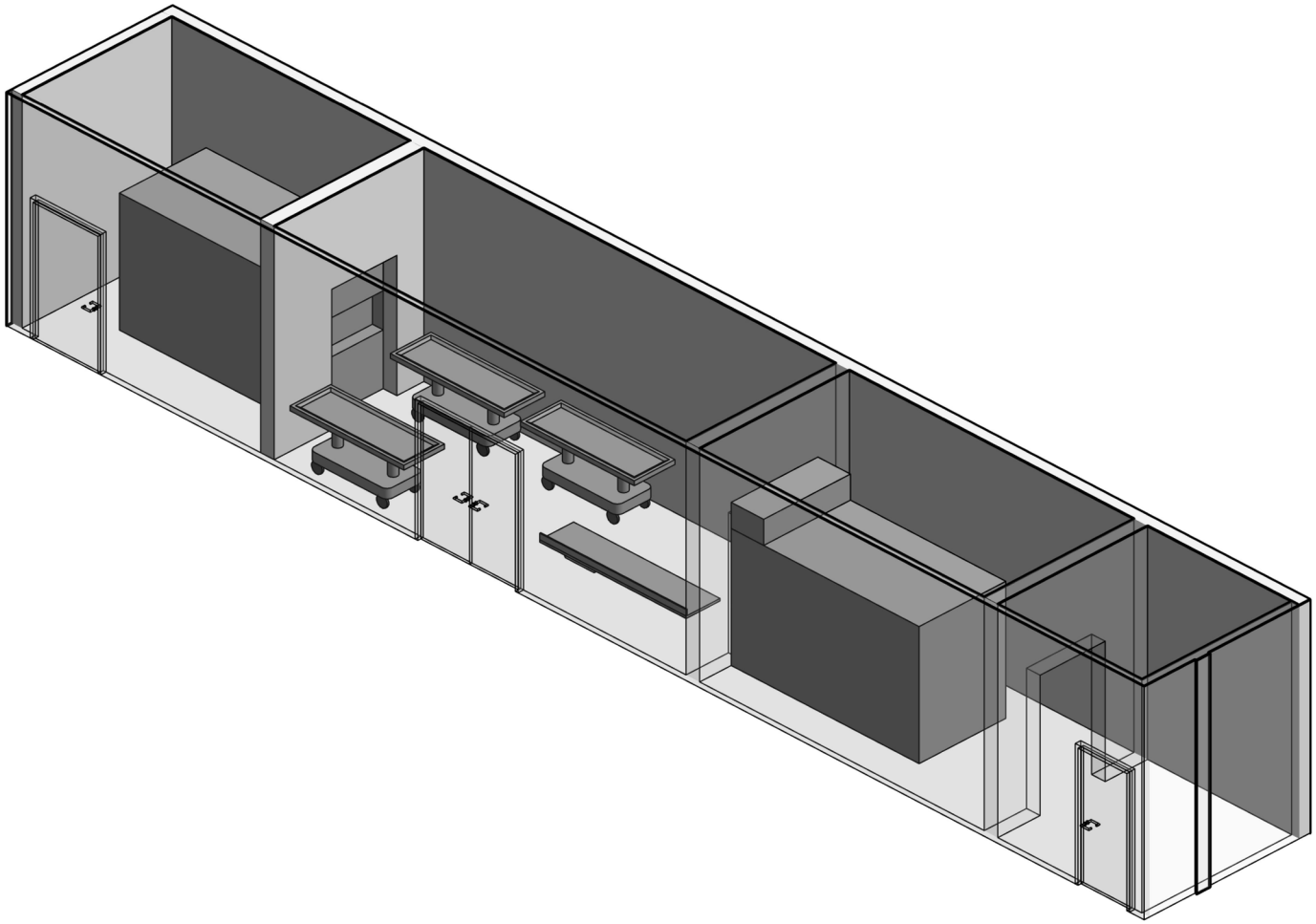
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	X
Resinous/ Epoxy	
Carpet	
Other	
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	
Acoustic Tile	X
Moisture Resistant Tiles	
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	42" x 96"
Type	Metal
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	X
Other	

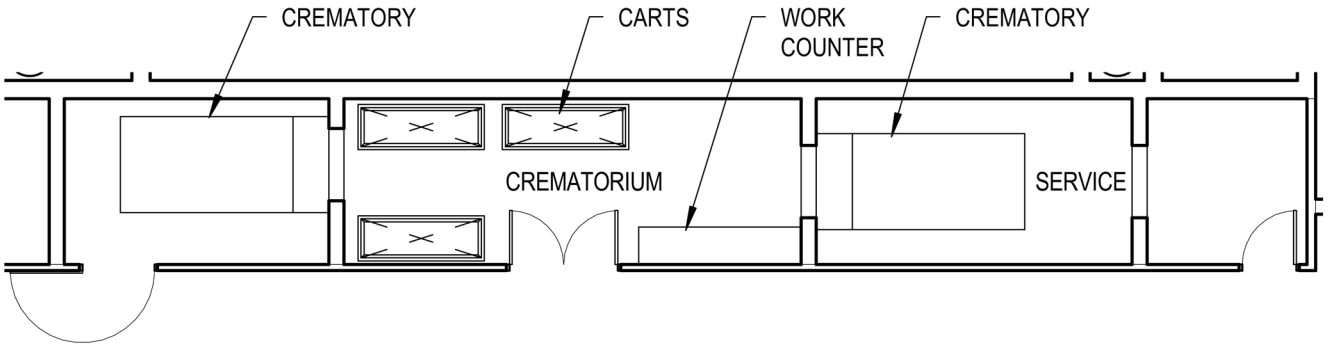
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

REMARKS:

1. Wire shelving for bones stored in wooden boxes/ suitcases. Also used for examinations.
2. Blueprint file storage' shallow storage cabinets or solid shelves for easy access.

CREMATORIUM





Space Name: Crematorium
Space ID 2.09
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	X
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	
Other	Make Up Air
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	Note 1

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	X
Work Surface	
Stainless Steel	X
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	X
Skeleton Cabinets	

PLUMBING	
Sinks	
Type	
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	X
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	X
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	X
30-60 fc at bench/desk	
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	
Smart Board	
Computer System	
Other	

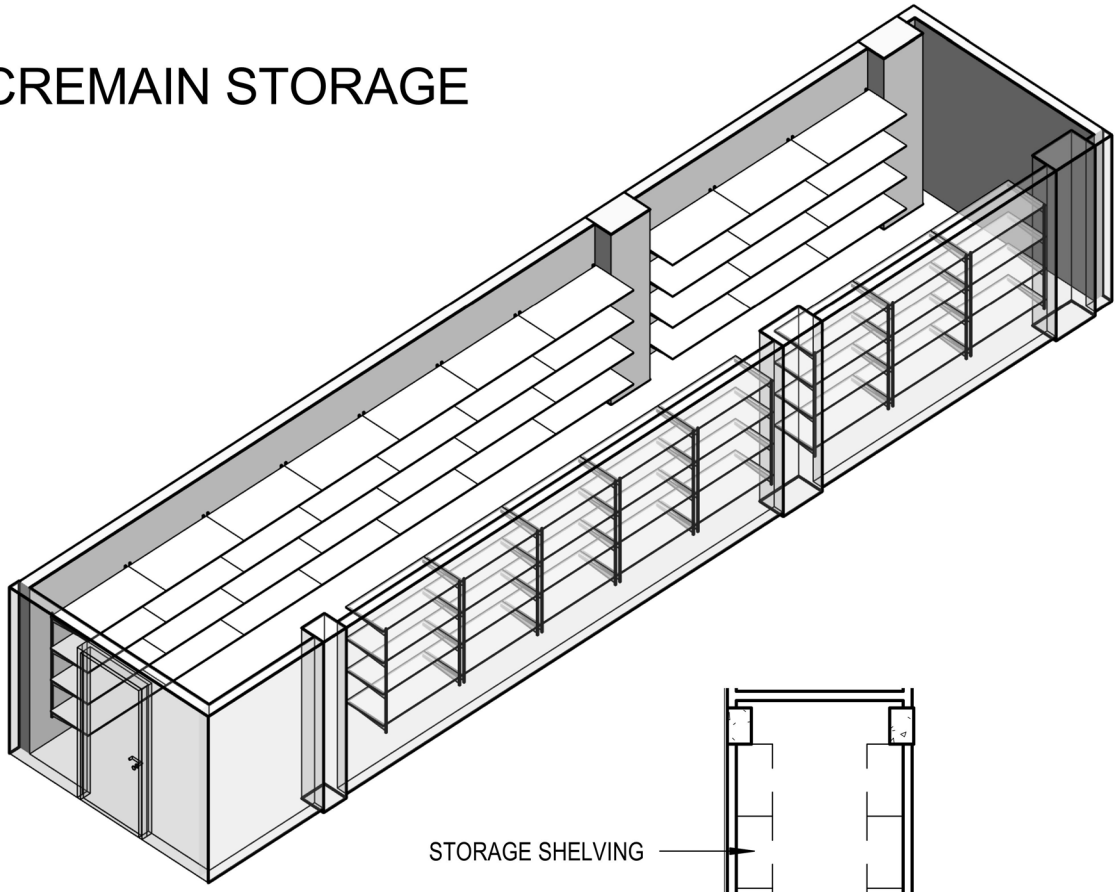
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	X
Crash Rails	X
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	
Other	Concrete
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	X
Acoustic Tile	
Moisture Resistant Tiles	
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	72" x 96"
Type	Metal
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	X
Other	

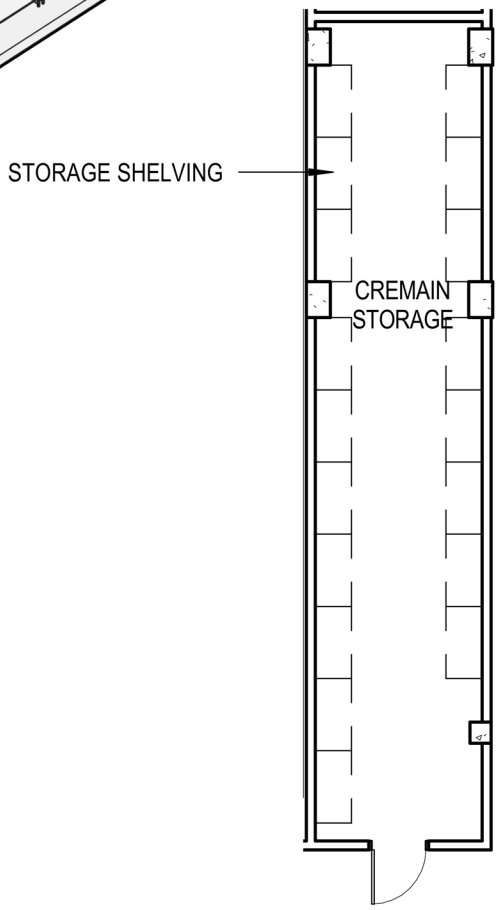
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

REMARKS:

1. Cremator, need capacity of 2 plus cremations per day - MINIMUM, will need make up air during operation.
2. Needs natural gas connection

CREMAIN STORAGE





Space Name: Cremain Storage
Space ID 2.11
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	X
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	Note 1

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	X
Work Surface	
Stainless Steel	X
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	X
Skeleton Cabinets	

PLUMBING	
Sinks	
Type	Hand wash
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	X
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	X
30-60 fc at bench/desk	
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	Cremetorium
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	
Smart Board	
Computer System	
Other	

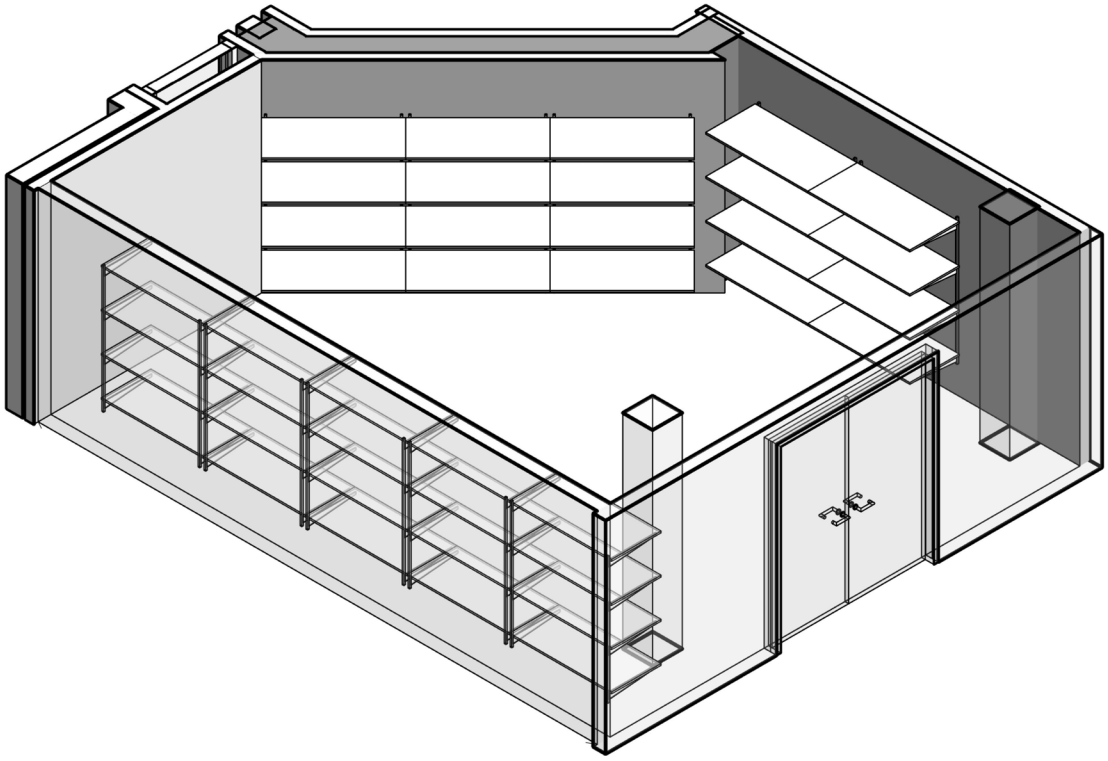
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	X
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	
Other	Concrete
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	X
Acoustic Tile	
Moisture Resistant Tiles	
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	72" x 96"
Type	Metal
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	X
Other	

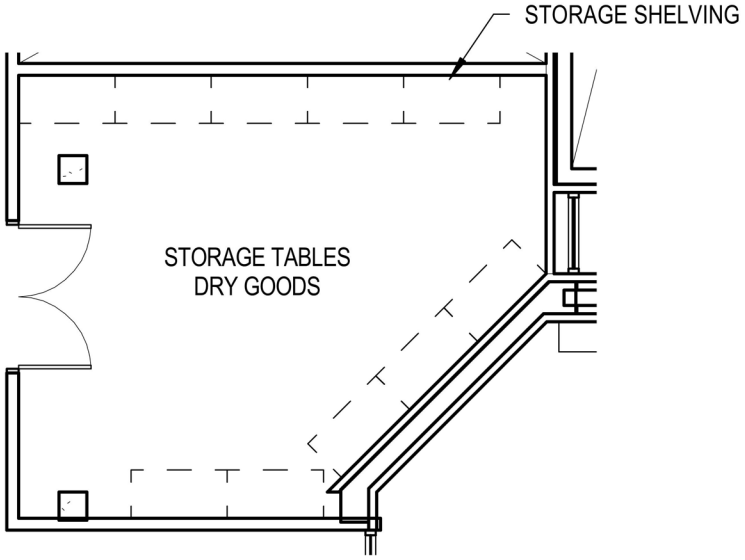
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

REMARKS:

1. Storage for 300 urns- each 6"x9"x12"

STORAGE TABLES / DRY GOODS





0 4' 8' 16'

Space Name: Storage - Tables/ Dry Goods
Space ID 2.12
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	X
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	X
Recirculated Air	
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	Note 1

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	X
Work Surface	
Stainless Steel	X
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	X
Skeleton Cabinets	

PLUMBING	
Sinks	
Type	Hand wash
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	X
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	X
30-60 fc at bench/desk	
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	Anatomy Lab
Secondary Adjacency	Table Wash

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	
Smart Board	
Computer System	
Other	

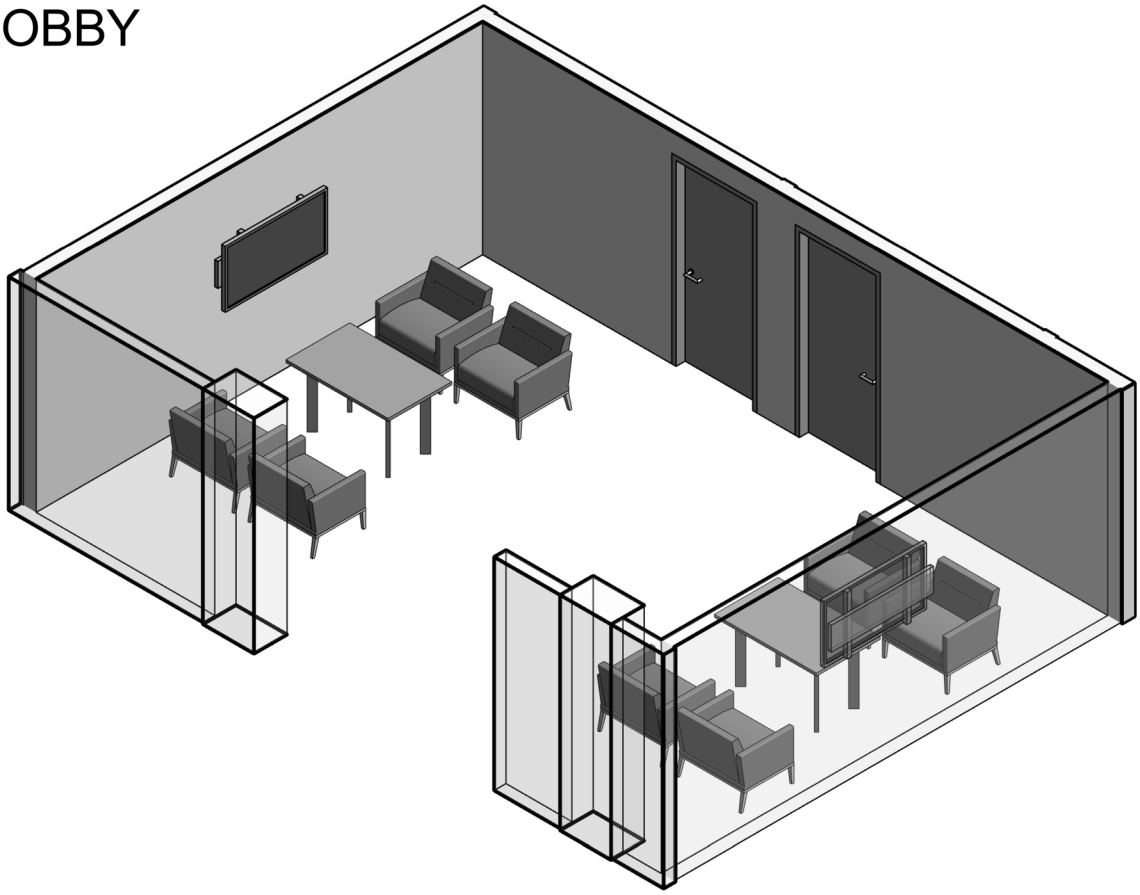
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	
GWB, Epoxy Paint	X
Other	
Wall Protection	
Corner Guards	X
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	
Other	Concrete
Base	
4" Rubber	
Integral w/floor	X
Ceiling	
Open	X
Acoustic Tile	
Moisture Resistant Tiles	
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	72" x 96"
Type	Metal
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	X
Other	

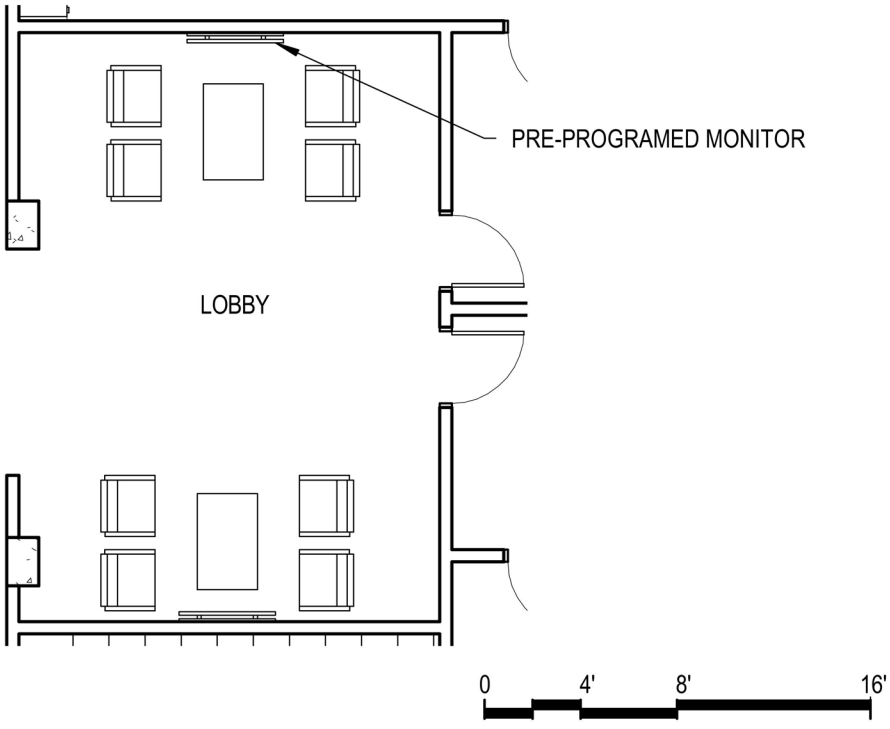
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

REMARKS:

1. Storage for 8-10 clean tables, dry goods. Provide wire shelving

LOBBY





Space Name: Anatomy Reception/ Lobby
Space ID 3.01
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	Varies 2 to 4

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	
Recirculated Air	
Air Pressure Positive	X
Air Pressure Negative	
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	
Other	Note 2

PLUMBING	
Sinks	
Type	
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	X
Special Lighting	
Natural Daylight	X
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensor	X

ADJACENCY CRITERIA	
Primary Adjacency	
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	Note 1
Camera Mobile Cart	
Camera Arm Mounted	
White Board	
Smart Board	
Computer System	X
Other	

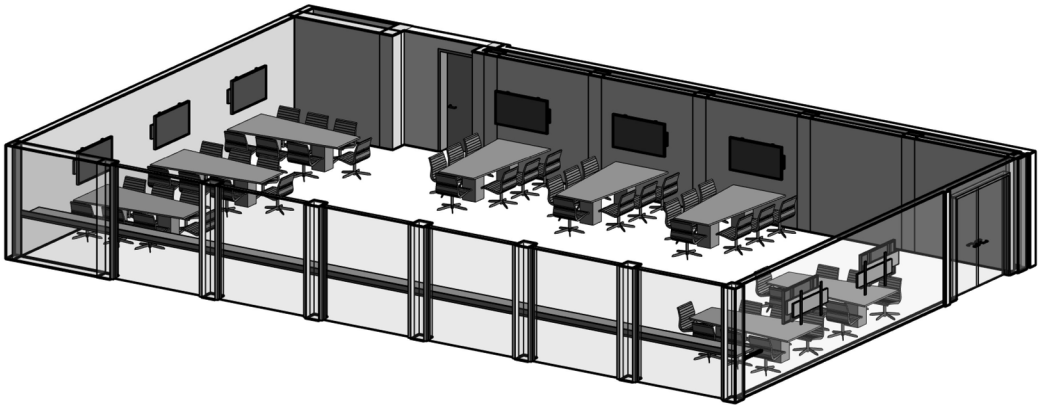
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	X
GWB, Epoxy Paint	
Other	
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	X
Other	
Base	
4" Rubber	X
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	X
Moisture Resistant Tiles	
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	36" x 96"
Type	Wood
Operable Wall	
Vision Panel	X
Hardware	
Security Card Reader	X
Other	

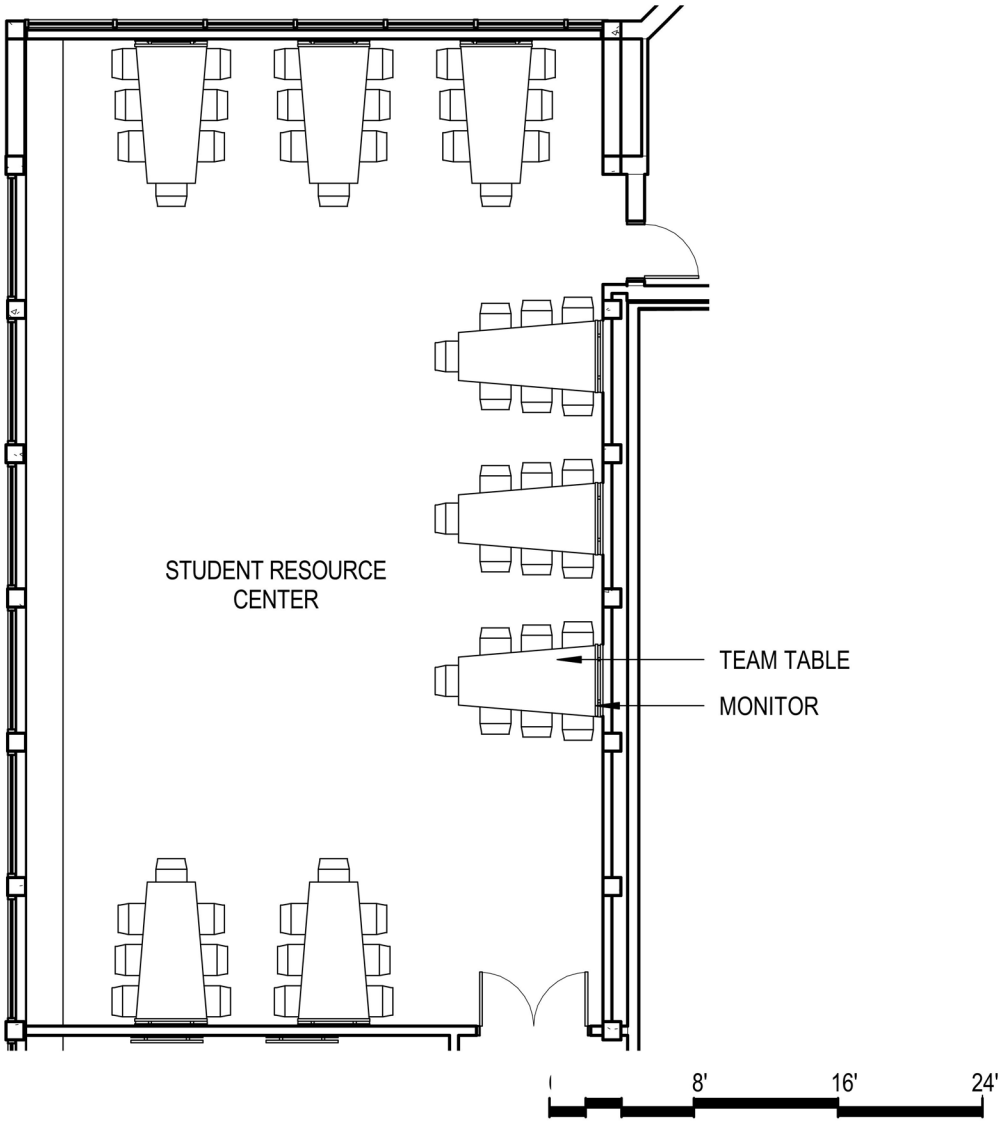
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	X

REMARKS:

1. Provide monitor with computer, wireless mouse and wireless keyboard
2. Office Furniture to be provided

STUDENT RESOURCE CENTER





Space Name: Classroom/Resource Center
Space ID 3.02
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	50

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	
Recirculated Air	
Air Pressure Positive	X
Air Pressure Negative	
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	X
Shelves	X
Skeleton Cabinets	
Other	Note 2

PLUMBING	
Sinks	
Type	Hand wash
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	X
Special Lighting	
Natural Daylight	X
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensor	X

ADJACENCY CRITERIA	
Primary Adjacency	
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	Note 1
Camera Mobile Cart	
Camera Arm Mounted	
White Board	X
Smart Board	
Computer System	X
Other	

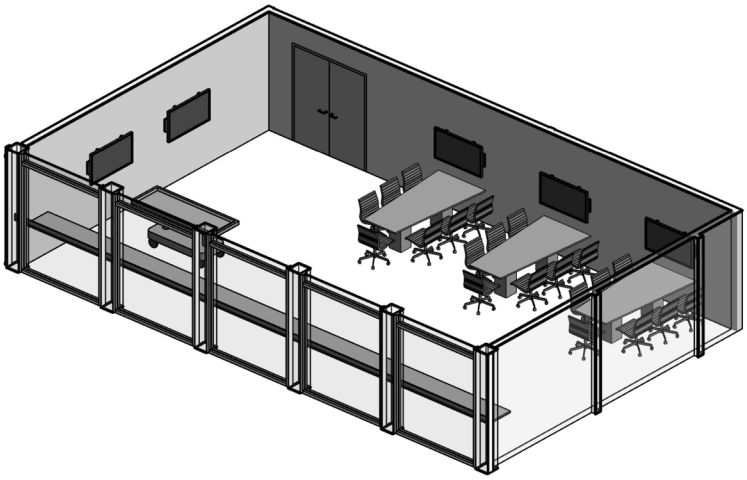
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	X
GWB, Epoxy Paint	
Other	
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	X
Other	
Base	
4" Rubber	X
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	X
Moisture Resistant Tiles	
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	36" x 96"
Type	Wood
Operable Wall	
Vision Panel	X
Hardware	
Security Card Reader	X
Other	

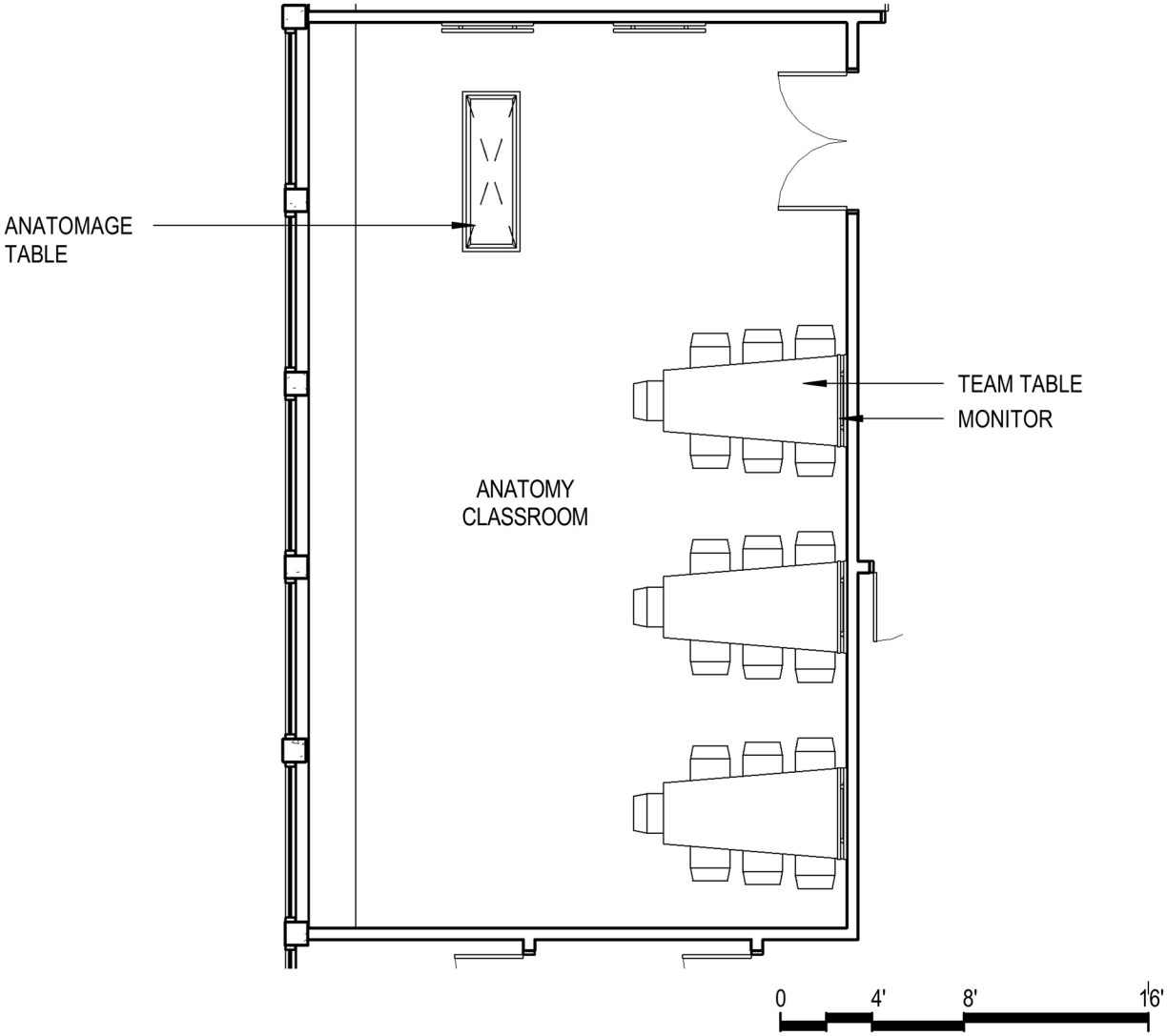
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	X

REMARKS:

1. Provide monitor with computer, wireless mouse and wireless keyboard. Provide AV cart or lectern.
2. Small group tables with monitors. Each table to seat 5-10 students. Counter to lay cross sections

ANATOMY CLASSROOM





Space Name: Anatomy Classroom
Space ID 3.03
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	10 to 20

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	
Recirculated Air	
Air Pressure Positive	X
Air Pressure Negative	
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	Anatomage table

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	X
Shelves	X
Skeleton Cabinets	
Other	Note 2

PLUMBING	
Sinks	
Type	Hand wash
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	X
Special Lighting	
Natural Daylight	X
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensor	X

ADJACENCY CRITERIA	
Primary Adjacency	
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	Note 1
Camera Mobile Cart	
Camera Arm Mounted	
White Board	X
Smart Board	
Computer System	X
Other	

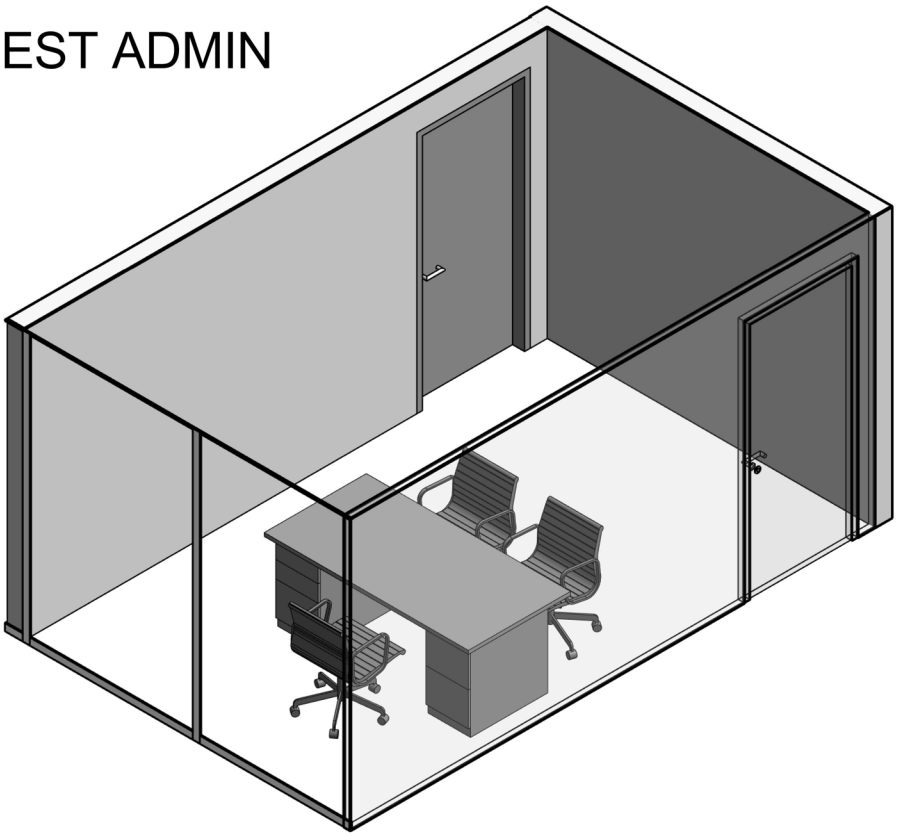
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	X
GWB, Epoxy Paint	
Other	
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	X
Other	
Base	
4" Rubber	X
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	X
Moisture Resistant Tiles	
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	36" x 96"
Type	Wood
Operable Wall	
Vision Panel	X
Hardware	
Security Card Reader	X
Other	

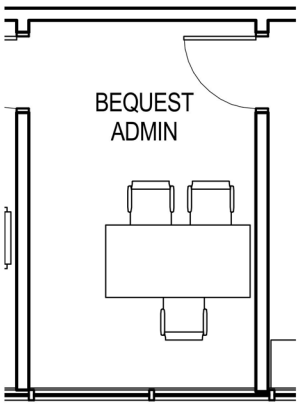
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	X

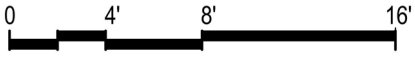
REMARKS:

1. Provide monitor with computer, wireless mouse and wireless keyboard. Monitor to have the ability to project Anatomage table contents.
2. Office Furniture to be provided

BEQUEST ADMIN







Space Name: Bequest Admin Office
Space ID 3.04
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	X
14 hours/day	
24 hours/day	

OCCUPANY	
No. Of Occupants	1 to 2

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	
Recirculated Air	X
Air Pressure Positive	X
Air Pressure Negative	
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	
Other	Note 1

PLUMBING	
Sinks	
Type	
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	X
Smart Board	
Computer System	
Other	

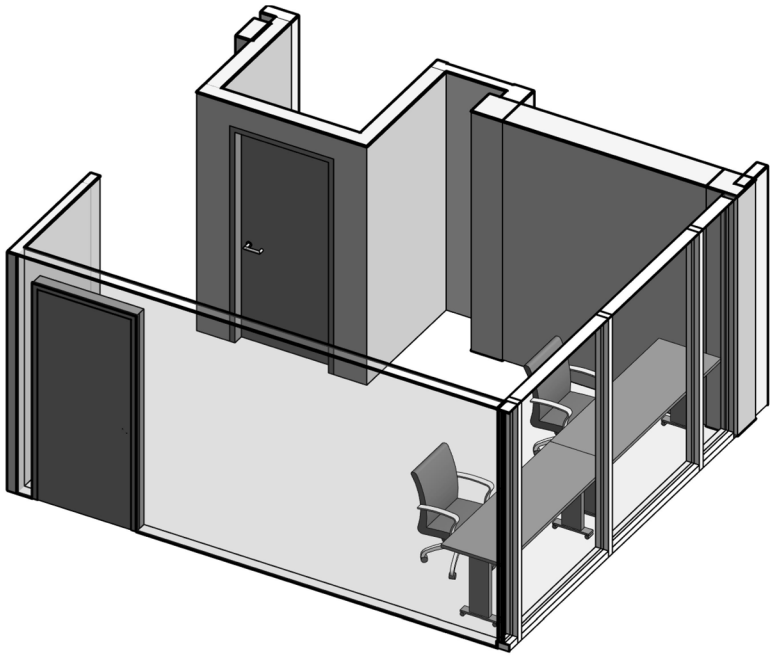
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	X
GWB, Epoxy Paint	
Other	
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	X
Other	
Base	
4" Rubber	X
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	X
Moisture Resistant Tiles	
Gyp. Board	
Height	9'-0"
Other	
Doors	
Size	36" x 96"
Type	Wood
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	
Other	

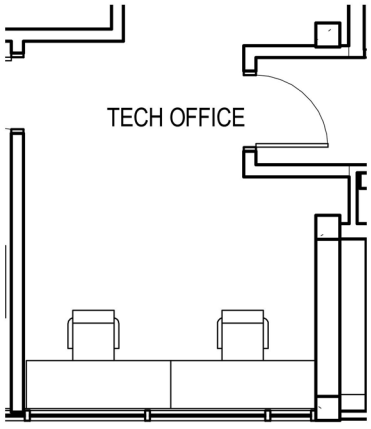
SECURITY	
Locks	X
Card Access	
24/7 Student Access	

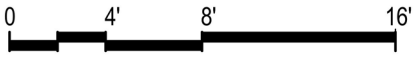
REMARKS:

1. Office Furniture to be provided
2.

TECH OFFICE







Space Name: Tech Office
Space ID 3.05
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	X
14 hours/day	
24 hours/day	

OCCUPANY	
No. Of Occupants	1 to 3

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	
Recirculated Air	X
Air Pressure Positive	X
Air Pressure Negative	
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	
Other	Note 1

PLUMBING	
Sinks	
Type	
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	X
Smart Board	
Computer System	
Other	

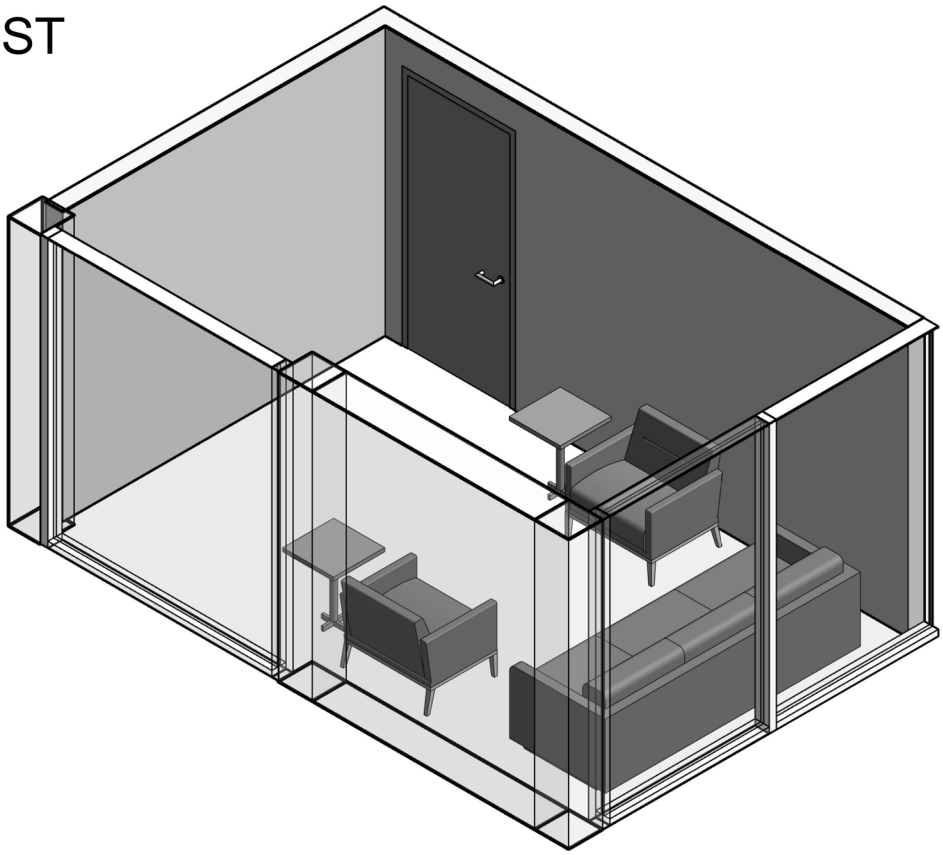
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	X
GWB, Epoxy Paint	
Other	
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	X
Other	
Base	
4" Rubber	X
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	X
Moisture Resistant Tiles	
Gyp. Board	
Height	9'-0"
Other	
Doors	
Size	36" x 96"
Type	Wood
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	
Other	

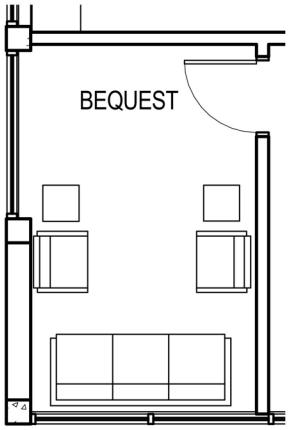
SECURITY	
Locks	X
Card Access	
24/7 Student Access	

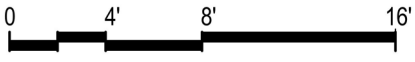
REMARKS:

1. Office Furniture to be provided
2. Locate away from laboratory prep area.

BEQUEST







Space Name: Bequest Family Area
Space ID 3.06
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	X
14 hours/day	
24 hours/day	

OCCUPANY	
No. Of Occupants	1 to 4

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	
Recirculated Air	X
Air Pressure Positive	X
Air Pressure Negative	
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	
Other	Note 1

PLUMBING	
Sinks	
Type	
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	X
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	
Smart Board	
Computer System	
Other	

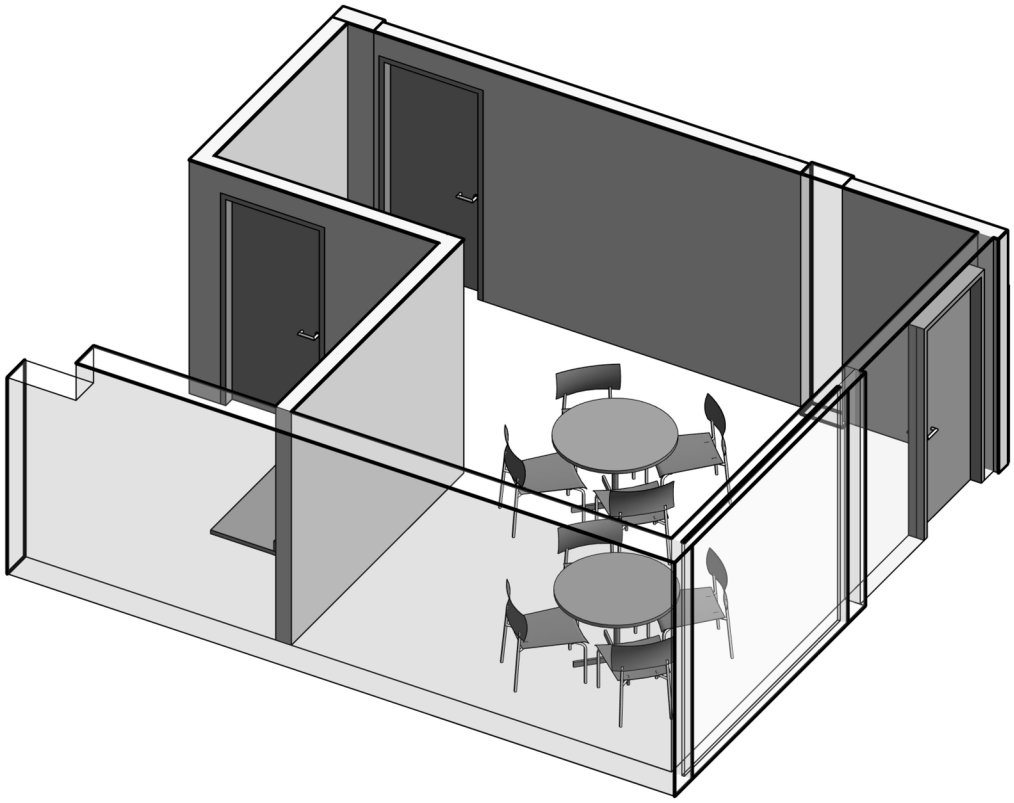
ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	X
GWB, Epoxy Paint	
Other	
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	X
Other	
Base	
4" Rubber	X
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	X
Moisture Resistant Tiles	
Gyp. Board	
Height	9'-0"
Other	
Doors	
Size	36" x 96"
Type	Wood
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	
Other	

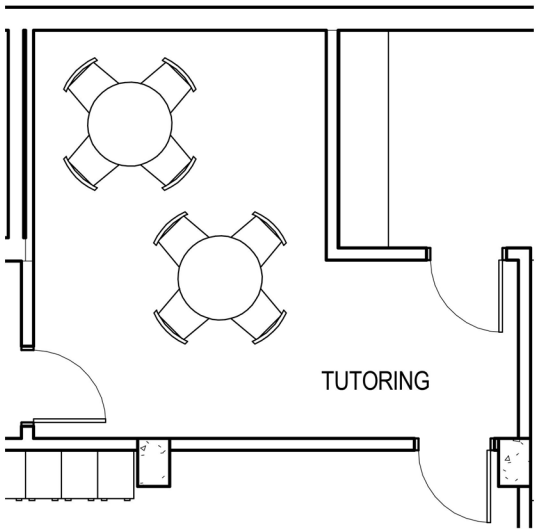
SECURITY	
Locks	X
Card Access	
24/7 Student Access	

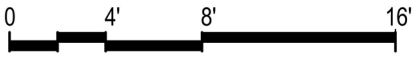
REMARKS:

1. Office Furniture to be provided
2. Space to meet donor families

TUTORING







Space Name: Tutoring
Space ID 3.07
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	
Recirculated Air	
Air Pressure Positive	X
Air Pressure Negative	
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	35-40

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	X
Shelves	X
Skeleton Cabinets	
Other	Note 2

PLUMBING	
Sinks	
Type	Hand wash
ADA	
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	X
Special Lighting	
Natural Daylight	X
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensor	X

ADJACENCY CRITERIA	
Primary Adjacency	
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	X
Smart Board	
Computer System	X
Other	

ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	X
GWB, Epoxy Paint	
Other	
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	X
Other	
Base	
4" Rubber	X
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	X
Moisture Resistant Tiles	
Gyp. Board	
Height	10'-0"
Other	
Doors	
Size	36" x 96"
Type	Wood
Operable Wall	
Vision Panel	X
Hardware	
Security Card Reader	X
Other	

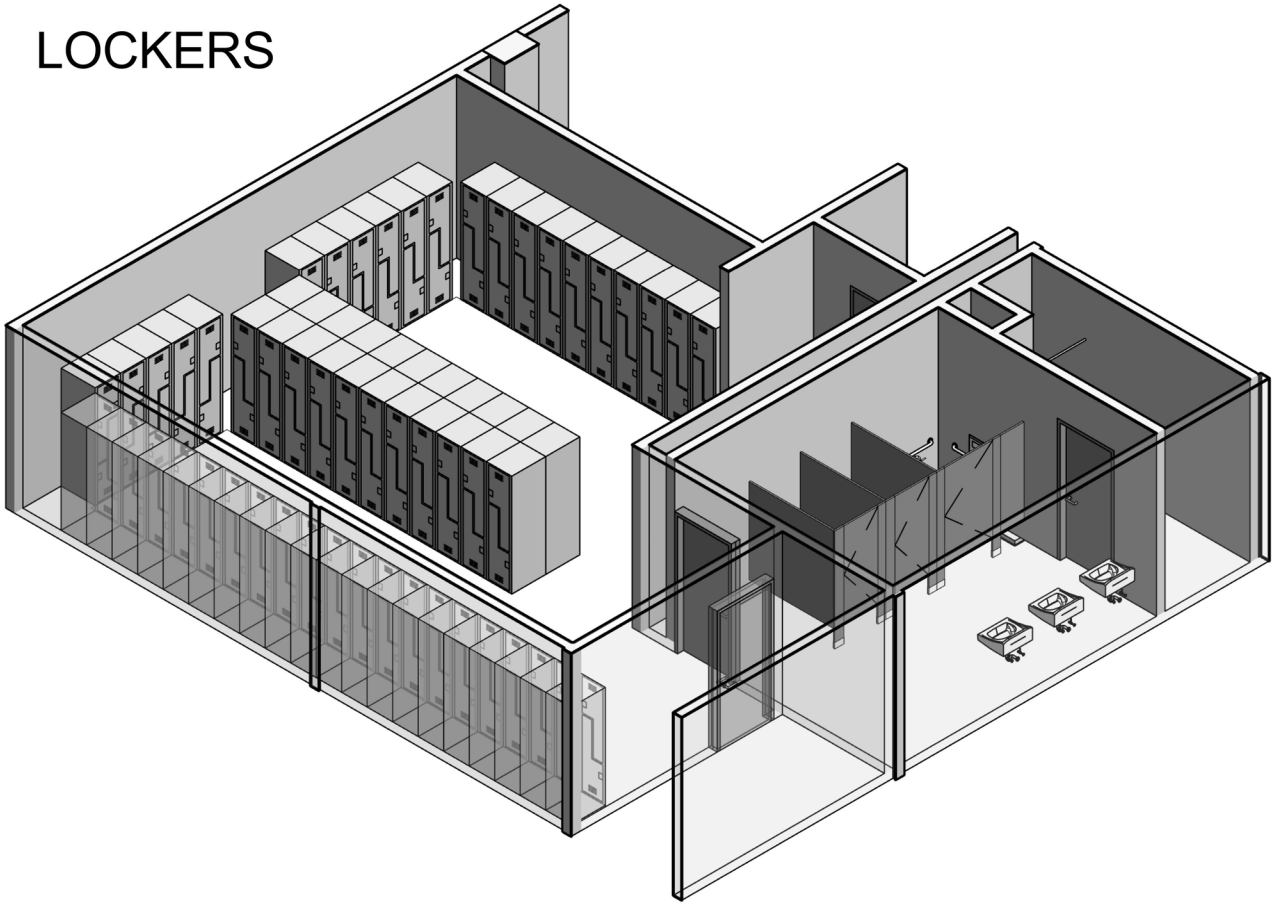
SECURITY	
Locks	X
Card Access	X
24/7 Student Access	X

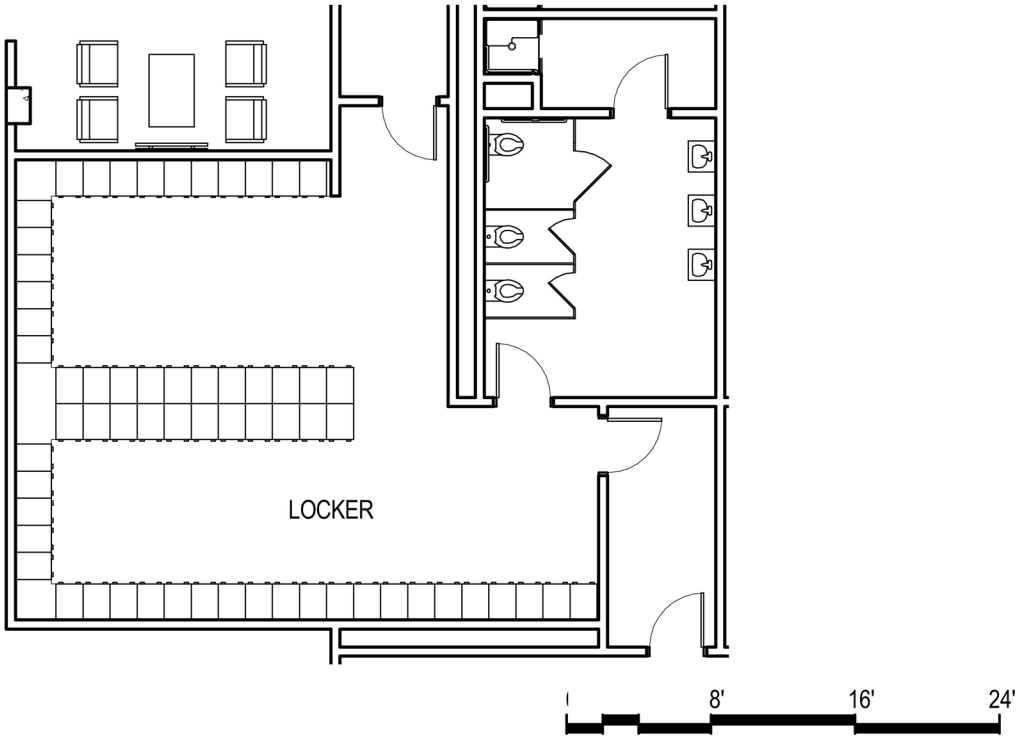
REMARKS:

1. Shared workspace for upper classmen tutors. Locate away from lab prep area.

2. Office Furniture to be provided

LOCKERS





Space Name: Locker/Change Room
Space ID 4
Department: ANATOMY & NEUROBIOLOGY

THE UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

UTILIZATION	
Hours of Operation	
8 hours/day	
14 hours/day	
24 hours/day	X

OCCUPANY	
No. Of Occupants	

MECHANICAL	
Temperature	
68°-75° ± 2°F	X
72°F ± 2°F	
Other	
Humidity	
50%- 25%± 5%	
Uncontrolled	X
Other < 50%	
6-8 ACH (Min)	
15 ACH (Min)	
20 ACH (Min)	
100% Make-up Air	
Recirculated Air	X
Air Pressure Positive	
Air Pressure Negative	X
Air Filtration	
Other	
Low Exhaust	
Diffuse Supply	
NC Acoustical Criteria	

ANATOMY EQUIPMENT	
Dissection Table	
Downdraft Table	
Dip Tanks	
Cadaver Racks	
Other	

CASEWORK/MILLWORK/ FURNITURE	
Metal Casework	
Stainless Steel	
Powder coated Metal	
Work Surface	
Stainless Steel	
Epoxy	
Table w/ seating for 2-4	
Wall Mounted	
Cabinets	
Shelves	
Skeleton Cabinets	
Other	Note 1

PLUMBING	
Sinks	
Type	
ADA	X
Scullery	
Triple basin	
Special Function	
Controls	
Sensor touchless	X
Foot Control	
Knee Control	
Wrist Blade	
Floor Drains	X
Safety Shower	
Eyewash/fire Extinguisher	
Shower/ Eyewash	
Drench Hose	
Mop Sink/ Wash-down Reel	

ELECTRICAL/ DATA	
Electrical Raceway	
110V, 20A, 1 Phase	X
208V, 30A, 1 Phase	
208V, 30A, 3 Phase	
480V, 100A, 3 Phase	
Emergency/ Standby Power	
UPS (OFOI)	
Overhead Utility Column	
Overhead Power Reel	
Wireless Data	
Ethernet Data port	
Data Wall Outlet	
Other	

LIGHTING	
Lighting Level	
80-100 fc at bench/desk	
30-60 fc at bench/desk	X
Task Lighting	
Darkenable or Dimmable	
Special Lighting	
Natural Daylight	
Surgical Lights	
Single Head	
Double Head	
Camera	
Occupancy Sensors	X

ADJACENCY CRITERIA	
Primary Adjacency	
Secondary Adjacency	

AV	
Audio System	
Video Recording/Broadcast	
Monitors	
Camera Mobile Cart	
Camera Arm Mounted	
White Board	
Smart Board	
Computer System	
Other	

ARCHITECTURAL	
Walls/Partitions	
GWB, Paint	X
GWB, Epoxy Paint	
Other	
Wall Protection	
Corner Guards	
Crash Rails	
Other	
Flooring	
VCT/ Vinyl free tile	
Sheet Vinyl	
Concrete	
Resinous/ Epoxy	
Carpet	
Other	Porcelain Tile
Base	
4" Rubber	
Integral w/floor	
Ceiling	
Open	
Acoustic Tile	X
Moisture Resistant Tiles	X
Gyp. Board	
Height	9'-0"
Other	
Doors	
Size	36" x 96"
Type	Wood
Operable Wall	
Vision Panel	
Hardware	Keyed Lock
Security Card Reader	X
Other	

SECURITY	
Locks	X
Card Access	X
24/7 Student Access	

REMARKS:

1. Stacked Z Lockers, Bench and Dressing Bench
2.

4.0 - NARRATIVES

A. Architectural

Introduction
The construction materials and finishes for the renovation is defined based on discussions from program meetings with the Faculty for the Gross Anatomy Laboratory. The final material selections will be made during design, but it is anticipated the materials and architectural building systems will be consistent with University of Tennessee's design and construction standards. For the purposes of this document, the design team has described basic building components that may be considered by University of the Tennessee Health Science Center. The actual selection will depend on design team, detail cost and system performance studies that will be undertaken later in design.

Typical Exterior Wall
Typical existing exterior wall assembly consist of brick veneer and is not expected to require new finishes, except as follows at: laboratories, embalming, storage spaces and support area walls will be furred out with gypsum board on metal framing with acoustical insulation.

Windows and Curtain Wall Systems
Interior windows are anticipated at all laboratories to allow viewing into the Gross Anatomy Laboratories. Windows will be hollow metal framing with safety glazing per code requirements. All glazing will be provided with blackout roller shades.

Flashing
Flashing material at flat roof and elsewhere will be stainless steel.

Flat Roofs
The existing roof was recently replaced and will not need to be replaced in its entirety. New roof membrane and flashing at areas of construction activity will match existing for type and details. Access will be provided using existing roof access at stairways.

Basic Building Materials

Concrete and Masonry
Concrete Masonry: ASTM C90 Type I, moisture controlled units, Lightweight masonry units, reinforced at all exterior walls. At areas of existing decorative block match adjacent Concrete masonry block walls in basement corridor.

Metal Fabrications
All miscellaneous steel fabrications such as angles, clips etc. used on exterior wall or where exposed to weather will be galvanized. All miscellaneous interior steel fabrications such as ladders, angles, lighting mounts, supports etc. will be primed steel field painted.

Wood
- All finish carpentry will be per American Woodwork Institute (AWI) guidelines. Millwork in public areas will be premium grade, and millwork in offices and work areas will be custom grade.
- Pressure treated wood will meet requirements of American Wood Preservers Association. Pressure treated wood will be used at all locations where wood meets concrete or masonry, at all rough framing of exterior walls, wood nailers on exterior of building, wood blocking at top of walls and roof.

Thermal and Moisture Protection

- All sheet waterproofing on below grade walls will be bentonite waterproofing system with drainage mat tied into building foundation drainage system.
- CMU or concrete cavity wall surfaces will be damproofed using asphaltic bituminous damproofing material.
- All penthouse and mechanical space slabs will receive traffic coating. Basis of design will be PEDA-GARD II as manufactured by Neogard.
- Joint Sealers Interior: Butyl caulking for sound rated partitions, toilet room fixtures, and interior glazing and miscellaneous sealant. Chemical resistant silicone sealant at all lab benches and where backsplashes meet walls.
- Joint Sealers Exterior: One or two part silicone or polysulfide type sealant to be used at all exterior joints. Color as selected by Facilities Services Project Manager. One part silicone sealant at all window sash to pre-cast joints.
- Fire stopping will be installed at all floor, wall, and ceiling penetrations as required by code to seal all rated penetrations. Fire stopping rating to be equal to that of installed assembly. Label all penetrations above ceiling for rating. Use only U.L. fi re rated stopping materials.
- Metal Wall Panels, Exterior wall construction may include painted metal wall panels as selected by Facilities Services Project Manager over waterproofed reinforced Steel Stud or CMU construction as backup.

Doors and Windows

- Interior doors unless noted otherwise will comply with American Woodwork Institute (AWI) guidelines and match existing veneer and grade.
- Interior doors at laboratory and service spaces not in public areas to be galvanized hollow 18 ga. Heavy duty metal door with rigid honeycomb core, in accordance with Steel Door Institute Level 2 with seamless edges.
- Door Frames will be 14 gage in accordance with Steel Door Institute (SDI 100). Galvanize all exterior and interior laboratory frames.
- Door Hardware: All door closers will be heavy duty type. Closers will be LCN Super Smooth or approved equal. Provide best removable cores compatible with the keying system established for the university.
- All doors to include acoustical and door bottom seals. All exterior doors to have electric strikes and interior doors that are to recieve card access readers.
- Doors at Flex Laboratory and Gross Anatomy to be Sliding ICU doors inset or surface mount.

Finishes

- Typical partitions- painted 5/8-inch gypsum board on metal studs (STC Rating 50) extending to underside of structure and/or roof for all offices, classrooms, laboratories and perimeter of public spaces. Partitions enclosing shafts will have 2-hour fire resisting rating constructed using shaft-wall. Partition enclosing toilet rooms, janitor closets, telephone rooms, electrical rooms, or maintenance rooms will extend to structure in all cases for improved acoustical isolation.
- Acoustic Ceiling Panels Provide at common space: 4 foot by 4 foot highly absorptive type panels will be used in public gathering space ceilings, soffit and vertical walls above 8 feet A.F.F. Provide a minimum 25% recycled content in mineral fiber panels and suspension systems. (Decoustics Cilencio or similar)
- Acoustic Panel Ceilings 2X2 tegular with Light reflectance of .84-.89. Provide a minimum 25% recycled content in mineral fiber panels and suspension systems.
- Acoustical Panels Ceiling 2x4 vinyl wrapped to be provided at laboratories and support spaces.
- Resilient Wall Base will be 4" rubber, PVC free with molded corners.
- Resinous flooring with integral base to be provided at laboratory and storage spaces. Flooring to be 3 part system with mortar base coat and minimum 4" integral cove base. Top coat to be provided with integral anti slip grit texture. At integral base provide terrazzo metal L-trim with sealant at top edge.

- Resilient Flooring: Vinyl Composition Tile (VCT). Basis of design, Armstrong Imperial Texture, Standard Excelon Vinyl Composition Tile or building standard tile.
- Carpet Tile: Typical at offices and classroom, Carpet will be one that is accepted in an operating recycling program which extracts component materials for reuse and/or reclaims inherent energy, and does not contribute significantly to land fill. Carpet system must meet the Carpet and Rug Institute Green Label Indoor Air quality Test Program Requirements. If an adhesive is required for installation, use low VOC carpet manufacturer recommended adhesive and install per manufacturer's recommended frame or perimeter adhesive pattern method. (Full field glue-down is not acceptable except for carpet with an integral dry film adhesive back.) If a seam sealer is required for installation, use carpet manufacturer recommended low VOC seam sealer or recommend heat welded seaming. Shaw or interface full recycled/recyclable products. (Similar to Interface Entropy)
- Interior Painting GWB Walls and Ceilings – No-VOC water based latex primers and paint– with 30% accent colors. Hollow metal door and window frame coatings Epoxy or alkyd with no-VOC content
- Visual Display Boards Sliding marker boards will be provided at each conference room, gross anatomy lab and flex labs; provide equivalent of 24 lineal feet 4 feet high for each conference room.
- Ceramic Tile: All bathroom floors and fixture walls will receive ceramic or porcelain tile and base.
- Solid Surfacing to be provided at millwork and restroom counters to be monolithic, basis of design Silestone.

Specialties

- Interior Glazing: ¼"clear safety glazing at interior glazed openings and doors with lites.
- Stainless Steel Toilet Compartments- Stainless steel honeycomb core, floor-anchored, overhead braced. Urinal screens wall mounted.
- Louvers and Grilles: Fixed, extruded aluminum type, Finish will be 2 coat Fluoropolymer to meet or exceed AAMA 2605.
- Toilet Accessories: Basis of Design for all toilet accessories will be Bobrick Washroom Equipment, Inc. Accessories to be included are Paper Towel Dispensers, Toilet paper Dispensers, Grab Bars, Combination Paper Towel Dispenser/Disposal units, Sanitary Napkin dispensers, Sanitary Napkin disposal units, coat hooks, Mop and Broom holders for janitor closets and toilet seat cover dispensers. Diaper changing stations at selected restrooms. Coordinate with Campus standards.
- Corner guards 7 foot tall 3-1/2 inch flange to be stainless steel with double stick tape mounting typical.
- Fire Extinguishers, Cabinets, and Accessories, Provide fi re Class ABC all-purpose fire extinguishers in rated stainless steel cabinets (U.L. semi-recessed mounting) with glass doors where indicated. Provide full body fire blankets by Lab Safety Supply or equal. All fire extinguishers, blankets, and accessories to comply with NFPA, OSHA and all locations to be per State Fire Marshal.
- Signage, Designed and manufactured per the campus standard and as approved by Facilities Services Project Manager.
- Non-Illuminated Interior signs Use water-based, low-voc adhesive for.
- Folding Panel Partition, ceiling mounted folding panel partition may be provided in the selected spaces to provide flexible classrooms. Partitions to have a minimum sound rating of STC 56 and to provide pass through panel options and marker panel options. Basis of design: Skyfold or equal vertical rise system.
- Emergency Aid Specialties, Provide recessed or semi-recessed cabinets to accommodate standard Automatic External Defibrillator (AED) devices. Include alarm connected to centrally monitored alarm system. Basis of design: JL Industries 1400 Series. UTHSC to provide the AED devices.
- Locker, two tier z-locker with HPDE plastic construction with welded construction and padlock hasp, Bradley. Lenox Z locker. Locker to be provided with manufacture supplied 4" base.

Equipment

- Walk-In Cold Rooms, Adjustable Temperature 4 deg. C to 10 deg. C Cold Room: ESI, Harris Environmental Systems, Thermax or approved equal. To be supplied with a painted aluminum finish on all interior surfaces. Walls will include blocking for shelving as indicated on the drawings. Digital temperature monitoring devices are required. Provide lockable door units with exterior type pad lock (with required interior safety features), interior lighting with appropriate ballast or driver for temperature ratings for general use, warning/safety lights with controls, and remote exterior compressor units accessible from the roof. Intake relief air to be provided with HEPA filtration.
- Embalming sink, two station stainless steel embalming sink with down draft ventilation, waste disposal, eyewash, rinse hose, piping, electrical outlet, and valves. Sink to be pre-plumbed for connection to remote bulk embalming chemical. Sink to allow docking of down draft ventilation and perimeter water flushing in embalming cart. Basis of design: Manufacture; Mopec Model; CF300
- Embalming cart, Stainless steel cart with down draft exhaust at sides with wash down nozzles for full length of cart. Cart to interlock with embalming sink. Basis of design; Manufacture; Mopec Model; CF401.
- Mortuary cadaver storage rack, stainless steel rack with nylon rollers to accept stainless steel body trays. Unit to be 5 rows high and hold 250 body trays. Provide stainless steel trays that are compatible with rack. Stainless steel cadaver lift to be provided by owner. Basis of design: Manufacture Mopec Model; IE27
- Crematory, Cremation burner output 500,000 BTU per hour to provide a cremation rate of 150 lbs per hour. Utilities: Natural Gas, 208v single phase 45 amp, 30" diameter exhaust. Exhaust stack to be exterior mounted at exterior and will be self-supporting tied back to existing structure. Basis of; Model Design Phoenix II-1 by B&L Cremation System.
- Surgical Lighting, two head surgical light on single mounting plate, Berchtold model F 528.
- Interior Window Blinds, Windows will be ready to receive an adjustable roller-blind system with black out fabric.

Laboratory

- Laboratory Casework, (fixed units) is to be flush overlay style casework with semi-concealed hinges. Casework will include base cabinets, upper wall cabinets, tall storage cabinets, acid storage cabinets and flammable storage cabinets. All base cabinets are to have full height removable backs for access to service chase and will be at either standing height, ADA height, or sitting height. Bases to consist of 50% drawers and 50% cupboard units. Perimeter, wall mounted casework will be fixed. All service chase enclosures are to receive matching finishes. Tops are to be made of 3/4" thick epoxy resin or stainless steel. Casework to be stainless steel or cold rolled metal fabrication and powder coated.
- Sinks to match work surface material and be integral or under mount. Provide waste disposals at work sinks outlets in laboratory.
- Deck mounted, single action, chrome finish.
- Hose: 8ft. Reinforced PVC hose with squeeze lever-operated valve, spray type outlet head.
- Emergency Shower: Fully accessible, barrier free freestanding model by Guardian, Hawes, or equal in chrome finish.
- Mechanical Service Fittings: Epoxy coated cast bronze by Kewaunee, Chicago or Water Saver, or manufacturer's standard as approved.
- Faucets: As noted above, with vacuum breakers or aspirator as noted.
- Scrub Sink: Stainless steel units with hands free control
- Elec Service Fittings: Manufacturer's standard stainless steel enclosures and faceplates. All electrical services fittings to be wall mounted.
- Chemical storage cabinets, flammable and corrosive storage cabinets metal with integral secondary containment trays. Cabinet to be metal construction for flammable chemicals. Corrosive cabinets to have polyethylene interior components. Doors to be self-closing with integral latch and lock. Construction to be OSHA, FM and NFPA compliant. Capacity to be 45 gallon.

Vertical Transportation

- Renovation of existing elevators with new cab finishes and controls are to be provided by a separate project scope of work.

B. Structural

The following structural narrative is provided for the General Education Building on the University of Tennessee Health Sciences Campus in Memphis, TN. The building is proposed for use as a new gross anatomy laboratory and classroom space. We understand the primary structural scope elements as follows:

- New space in the basement to serve as a crematory inclusive of new equipment, equipment pads, and new flues.
- New space on Level 3 to serve as the new gross anatomy lab with accompanying service space.
- New rooftop mechanical equipment installation to serve the new lab space.

Feasibility Considerations

The current use of the space is classroom and laboratory space, and the new use of the space is not expected to change the necessary load rating of the structure. Impacts to the building load carrying capacity will be evaluated based on final equipment weights and layouts, but are anticipated to be able to be arranged in a manner that avoids the need to reinforce the existing structure.

The interpretation of a building code official from the authority having jurisdiction for the proposed project may be appropriate to confirm these recommendations.

Structural Impacts

We anticipate modifications at the basement to accommodate the new equipment and to provide the new flues and areaways for that equipment. New concrete pads should be expected to be needed, along with local demolition of the existing slab on grade. New penetrations in the existing basement wall will require local reinforcement, and new cast-in-place concrete areaways will provide flue access to the exterior of the building. The flues will then be enclosed in a metal stud structure attached to the exterior of the existing building. No modifications of the existing shear walls or columns are anticipated.

At level 3, the anticipated modifications include small penetrations for new services and new miscellaneous structural steel framing to support equipment from the structure above.

At the roof, new structural steel framing is anticipated above the existing columns to provide dunnage capable of supporting new air handling units and fans. Reinforcing of the existing columns is not anticipated to be necessary, but depends on the final unit weights and arrangements. Evaluation of this requirement will be considered during the design process.

The proposed modifications do not appear to modify the existing structure in a manner that directly impacts the vertical load system of the building (load bearing walls, columns, foundations) nor the lateral load resisting systems (assumed to be shear walls). All modifications are expected to be in-line with the provisions of IBC chapter 34 for allowable modifications to existing structures.

C. Mechanical, Plumbing, Electrical, Fire Alarm, and Fire Protection

Project Description:

The proposed relocation and renovation of the gross anatomy lab at University of Tennessee Health Science Center will include approximately 37,000 square feet of lab and support space on the third floor of the General Education Building (GEB). The primary project goal is to expand capacity and flexibility to accommodate 250 students.

Heating Ventilation and Air Conditioning

Codes and Standards:
HVAC systems will comply with the following minimum requirements:

- International Building Code-2012
- International Mechanical Code-2012
- ASHRAE Standard 62.1-2013
- ASHRAE Standard 90.1-2010
- State of Tennessee High Performance Building Requirements
- University of Tennessee – Division of Facilities Planning – Designer's Manual

Design Conditions:
Gross anatomy lab space, receiving, and embalming areas: 62°F DB, 55% RH
Body storage and cold rooms: 44°F DB
Non-lab areas (resource center, office): 75°F DB, 50% RH summer; 70°F DB winter
Outside: 95°F DB, 78°F WB summer; 0°F DB winter.

Demolition:
Existing piping, ductwork, air distribution devices, and accessories serving the eastern part of the third floor of the GEB will be demolished. Material and equipment which has been removed will not be used in the new work.
Systems serving the classroom areas on the west end of the floor are independent from the laboratory areas and will remain in service.

Chilled water:
The basement of the GEB contains a 1,250 ton centrifugal chiller which is part of the central cooling plant serving much of the campus. The renovated area of the third floor is expected to add approximately 350-400 tons of cooling to the existing plant. New 8″ diameter chilled water piping will be extended from the existing cooling plant vertically through the building to new roof-mounted air handling units. Chilled water piping 2.5″ and larger will be schedule 40 black steel, and 2″ and smaller will be type L hard drawn copper. Piping will be insulated with preformed cellular glass pipe insulation with all service jacket with self-sealing lap.

Hot water:
The GEB basement contains a central heating plant with steam boilers and a 300 gpm hot water convertor. The renovated area of the third floor is expected to add approximately 1350 MBH of heating to the existing plant. Existing available spare heating capacity from the plant is unknown and will need to be confirmed by UTHSC. New hot water piping will be extended from the existing heating plant to the roof-mounted air handling units and to duct-mounted heating coils in supply air branch ductwork. Hot water piping and glycol energy recovery piping 2.5″ and larger will be schedule 40 black steel, and 2″ and smaller will be type L hard drawn copper. Piping will be insulated with preformed fiberglass pipe insulation with white all service jacket with self-sealing lap.

Air Handling Units:
A pair of new 100% outside air chilled water air handling units will be located on the GEB roof.

Each air handling unit will be approximately 30,000 CFM. Air handling units will be modular, draw-through, factory-fabricated, medium pressure type including the following features:

- 2″ thick, solid, galvanized steel, double-wall casings with rigid foam insulation between the walls. Perforated inner walls will be allowed at fan sections for improved acoustic performance. Unit casing shall be designed for exterior installation and the unit roof will be sloped to shed water.
- 12″ deep HEPA filters and 2″ deep pleated pre-filters.
- Hot water type preheat coils with 30°ΔT. An inline circulating pump will be provided to maintain full design flow at each preheat coil.
- Chilled water type cooling coils with maximum face velocity of 450 FPM, maximum 8 rows of depth, and 12°ΔT (to match the existing cooling plant design.)
- Premium efficiency fan motors with variable frequency drives.
- Consider the use of fan arrays for large air handling units (30,000 CFM and higher).
- Acceptable manufacturers will be Carrier, JCI-York, and Trane.

Lab Exhaust Fans:
A high-induction lab exhaust assembly will be located on the GEB roof. The assembly will consist of three direct-drive fans (approximately 30,000 CFM each) and a double-wall insulated casing containing an exhaust energy recovery coil and filters. Fans will discharge exhaust air through high velocity vertical discharge nozzles. The high velocity will maximize dispersion of effluents and minimize contamination of nearby intake sources. An inline pump will pump a propylene glycol solution between the energy recovery coil in the exhaust stream and the coil in the air handling units.

Air Distribution:
Ductwork will conform to SMACNA recommendations. New supply and exhaust ductwork will be galvanized steel insulated with 2″ thick fiberglass blanket insulation. New ductwork will be routed in the ceiling cavity above the lab space. Supply air distribution devices in the anatomy lab will be 2′ x 4′ laminar flow diffusers. Exhaust air will be drawn from low sidewall grilles or concealed openings through vertical branch ductwork inside chases.
Laboratory Airflow Controls: venturi-type supply and exhaust air valves will control airflow within lab spaces and provide constant air change rate during lab use. Air valves will be provided with factory-mounted electric actuators.

Refrigeration Systems: the body storage and cold room spaces will require independent refrigeration systems to maintain 44°F space temperatures. These systems would include ceiling-mounted indoor evaporator units and roof-mounted outdoor condensing units with interconnecting refrigerant piping.

Automatic Temperature Controls: expand the existing building control system and provide building control system (BCS) with electronic operators to control and monitor the chilled water system, heating water system, air handling units, fan coil units, terminal units, exhaust fans and other related systems. New BCS components will integrated into the existing building control system and will be fully compatible with and connected to the existing Energy Management System serving the campus. Acceptable manufacturers will be JCI and Schneider Electric (formerly TAC).

- BCS controllers will be field programmable, microprocessor-based type incorporating direct digital control and energy management functions. Each BCS controller will perform its assigned control and energy management functions as a stand-alone unit and will comply with FCC Part 15, Subpart B 2008. Each BCS controller will be expandable by adding additional input/output modules that operate through the processor of the BCS.
- Chilled water control valves will be 2-way, equal percentage flow characteristic, globe type with electric actuators. Heating water control valves will be 2-way, equal

percentage flow characteristic, globe or ball type with electric actuators.
- Control dampers will be low-leakage, opposed-blade type with airfoil blades, blade seals, side seals, and electric actuators.
- Space temperature sensors will be electronic type with set point adjustment, visual temperature scale, and communication port. Duct and pipe temperature sensors will be electronic type with accuracy of +/-0.5°F. Space and duct humidity sensors will have an accuracy of +/-2% RH. Air and water differential pressure sensors/transmitter will be provided with 3-valve manifold assembly to allow field test measurements to be taken without interrupting the BCS system reading. Current sensing relays will be provided for HVAC equipment status. Pressure switches will be provided for filter status.
- Software graphics with pictorial representations of equipment and devices being controlled will be provided.

Crematories:
Two new crematories are anticipated in the basement of GEB. Each will require a UL-listed refractory lined exhaust flue routed to the roof of the building. Refractory lining will be 3" thick. Each stack is anticipated to have an inside diameter of 24" and an outside diameter of 30." Stack routing will need to be mostly vertical with a termination point at least 60" above the roof surface. The stack will be provided by the crematory manufacturer.

The rooms containing the crematories will each need to be provided with a 24" x 24" make-up air opening with louver and motorized control dampers. In addition, local exhaust fans will be provided to remove heat from the rooms containing the crematories. Intake and exhaust to these rooms would be directly to the exterior.

Testing, Adjusting and Balancing:
Systems will be tested, adjusted, and balanced to achieve proper operation, design flow, temperature and pressure differentials, and pressure drop through piping, ductwork, equipment, and components. A Subcontractor, certified by AABC or NEBB and independent of the Contractor, will be required to perform testing, adjusting, and balancing work. Preliminary test and balance work should be performed on the systems which will be modified under the scope of the renovation, and these systems will need to be rebalanced after renovation work is completed.

Commissioning: the project will require commissioning of HVAC equipment and controls as required by the State of Tennessee High Performance Building Requirements.

PLUMBING

Plumbing Fixtures:
- Water closets will be elongated vitreous china, wall-hung, sensor-activated, flush valve type, 1.1 gallons per flush with white open front seats (Zurn Z5615.396.03.12.00).
- Urinals will be vitreous china, wall-hung, sensor-activated, flush valve type, 0.125 gallons per flush (Zurn Z5755.352.00).
- Lavatories will be vitreous china, under-mount type, with sensor-activated centerset faucet, 0.5 gpm flow control, and grid strainer (Zurn Z5220.975.1.07.B8.0).
- Water fountains will be electric, modular type with in-wall chiller, extended round receptors, and bottle filler option (Elkay LZWS-LRPBM28K-CLYQ).
- Service sinks will be terrazzo, floor type with grid strainer, rim guard and faucet with hose thread outlet, vacuum breaker and wall brace (Stern Williams HL-1800-T35-T40 and Zurn Z843M1-XL)
- Break room sinks will be stainless steel, self-rimming type, with swing spout faucet, and 1.5 gpm flow control (Symmons S-23).

- Regular showers will be composed of pressure balanced valves set to prevent full hot, with metal lever handles, and maximum 2.0 gpm adjustable showerheads (Symmons 1-100-X-L/HD)
- Handicapped showers will be composed of pressure balanced valves set to prevent full hot, with metal lever handles, adjustable slidebars, and maximum 2.0 gpm handheld showers with braided hoses (Symmons 1-117-FS-X-L/HD with Oxygenics Elite SkinCare 700-XLF20)

Piping:

- Domestic hot and cold water piping and sanitary waste and vent piping will be extended from the existing building systems to serve the new anatomy lab space.
- Drainage and vent piping will be hubless, coal-tar coated, service weight cast iron pipe and fittings with heavy duty compression type couplings.
- Domestic water piping within the building will be type L hard copper with wrought copper sweat type fittings, and joints using lead-free solder.
- Floor drains will be included in laboratory spaces and areas where washing is anticipated.

Domestic Water Heater:
A new domestic water heater is anticipated for the anatomy lab space to provide hot water to the wash down areas. Water heater is anticipated to be instantaneous gas-fired type located in the new anatomy lab space. Instantaneous type heaters will accommodate long periods of heavy hot water use. Exhaust flues from the heaters would extend through the roof.

Crematories:

- Two new crematories are anticipated in the basement of GEB. Each will require approximately 2,300 CFH of natural gas service at 9-12" wc pressure. According to the original plumbing drawings for GEB, the existing intermediate pressure gas meter and associated piping is sized for 50,000 CFH of present load and 100,000 CFH of future load. The 50,000 CFH for present load matches the gas requirements for the existing steam boilers, but the future 100,000 CFH load may still be unutilized.
- New gas piping will extend from the existing mains to the crematories. Local gas pressure regulators will be provided to reduce gas pressure to 9-12" wc at the equipment.
- Natural gas piping will be schedule 40 black steel with welded joints.

ELECTRICAL SYSTEMS

General:
Electrical systems will comply with the following minimum requirements:
International Building Code-2012
NFPA 70-2011, National Electrical Code with Tennessee State Amendments
International Energy Conservation Code-2012
University of Tennessee – Division of Facilities Planning – Designer's Manual
University of Tennessee – Facility Services – Electrical Specifications

Demolition:

- Existing panelboards on the floor and in the electrical rooms will be removed and new panelboards provided to serve the new loads.
- Concealed wiring and raceways which are exposed by the removal of walls, partitions, and ceilings will be removed.
- Existing luminaires will be removed and new LED luminaires provided.
- Existing mechanical equipment that is removed, the electric wiring, raceways, switches

and starters associated with the equipment will be removed. Existing mechanical equipment that is modified or relocated, the electrical connections to the equipment will be adapted to its new function or location.

- Material and equipment which has been removed will not be used in the new work.

Electrical Distribution System:
In general, loads will be served as follows:

Load	Service
LED lighting	277 V
Motors 0.5 hp and larger	480 V, 3-phase.
Receptacles and motors 0.33 hp and smaller	120 V, single-phase through the use of step-down transformers

- The building has two 1000 A bus risers that serve the loads within the Laboratory Building. One busway is in the south electrical room and the other is in the north electrical room on each floor. Most of the 208/120V panelboards on the 3rd floor are served from distribution panelboards on the 2nd floor. The busway on the 3rd floor serves a 480/277 V lighting panel in each electrical room.
- New dry-type transformers, distribution panelboards, and branch circuit panelboards will be provided to serve the loads on the 3rd floor. Laboratory panelboards will be provided for each lab and located within the space.
- Protective devices in panelboards will be bolt-on type circuit breakers. Bussing in panelboards will be copper. Panelboards will have minimum 15% spare circuit breakers plus 10% spaces for future breakers. Six spare 1″ conduits will be stubbed up above ceiling for recessed panelboards. Dry-type transformers will be provided to serve receptacle and other 120 V loads. Dry-type transformers will be copper wound, 480 V delta primary, 208Y/120 V secondary, 220°C insulation, 150°C rise.
- Wiring will be insulated conductors installed in raceways. Conductors will be copper with type THWN/THHN or XHHW insulation. Conductors for power wiring will be a minimum of #12 AWG and a maximum of 500 kcmil.
- Raceways will be minimum 0.75″ for power and minimum 1″ for communications. In general, electrical metallic tubing will be provided for interior wiring installations. Rigid metal conduit will be provided for exposed raceways and other applications. Flexible metal conduits will be provided for connections to recessed luminaires, motors, dry-type transformers, and electrical equipment subject to movement or vibration. Liquid tight flexible metal conduits will be provided for connection to equipment exposed to rain or spray. Cable trays will be provided to form a system that interconnect all telecommunication rooms and extends throughout corridors and work areas.
- Electrical systems, circuit and equipment will be grounded and bonded. A green colored grounding conductor will be installed in raceways with the phase conductors.

Lighting:
Generally, interior lighting will be LED type. Illumination levels for work surfaces will be provided in accordance with IESNA recommended illumination levels.
In general, the following luminaire types will be provided:

- Enclosed offices: 2′ x 4′, recessed direct/indirect LED systems.
- Open offices: 2′ x 4′, recessed direct/indirect LED systems.
- Lobbies and corridors: recessed LED downlights.
- Laboratories: 2′ x 4′, recessed, wet-location listed LED systems.
- Mechanical and electrical rooms: industrial type LED luminaires.
- Means of egress: in accordance with NFPA 101-2015.

Interior spaces will be provided controls for automatic lighting shut-off in accordance with International Energy Conservation Code. Automatic lighting shut-off controls will consist

primarily of ceiling-mounted occupancy sensors with local override switch.
Mechanical and electrical rooms will be provided with digital timer wall switches.
Lighting within 15' of glazed exterior walls will be provided with daylight responsive dimming controls including dimming drivers and photosensors.
Interior office spaces and laboratory spaces will be provided with dimming controls.

Emergency Power System:
The existing emergency power supply system will be used to serve select loads based on system capacity:

- Egress lighting and exit lights
- Fire detection and alarm systems
- Fire protection systems
- Lighting and receptacles in electrical rooms
- Lighting and receptacles in communication equipment rooms
- Cooling systems for communication equipment rooms
- Cold storage rooms
- Miscellaneous building loads as required by UTHSC

Communications Systems:
A complete communications system (equipment, equipment racks, cabling, conduits, pathways, equipment rooms, work area outlets, etc.) will be furnished and installed per OIT Satellite Equipment Room and Structured Cabling Requirements.

Security Systems:
Electronic security systems will include an integrated system of intrusion detection, access control and alarm monitoring, and video surveillance. Final connectivity and programming will be by UT Facility Services.

Electrical Systems Commissioning
The project will require commissioning of lighting control systems as required by the State of Tennessee High Performance Building Requirements.

FIRE ALARM SYSTEM

General:
Fire alarm system will comply with the following minimum requirements:

International Building Code-2012
NFPA 70-2011, National Electrical Code with Tennessee State Amendments
NFPA 72-2013, National Fire Alarm Code
NFPA 101-2012, Life Safety Code
University of Tennessee – Division of Facilities Planning – Designer's Manual

Demolition:
Existing fire alarm systems serving renovated areas of the project will be completely demolished and replaced with new. Material and equipment which has been removed will not be used in the new work.

Design Criteria:
The fire alarm system will be an extension of the existing system.

Control Equipment:
Control equipment will be modular in construction, UL listed, and housed in a surface-mounted steel cabinet. Operating voltage will be 24 V DC. Standby power will be furnished by a 4-hour self-contained emergency battery power supply.

Alarm Initiating Devices:
Alarm initiating devices will include addressable manual pull stations, monitor modules, duct detectors, heat detectors, and smoke detectors. Auxiliary functions will be performed by control modules located within 36" of the controls for the equipment to be operated.

Notification Devices:
Alarm signaling devices will consist of alarm speakers and strobe lights.

FIRE SUPPRESSION

General:
Fire suppression systems will comply with the following minimum requirements:

- International Building Code-2012
- International Fire Prevention Code-2012
- NFPA 13-2010, Installation of Sprinkler Systems
- University of Tennessee – Division of Facilities Planning – Designer's Manual

System Design:
The existing sprinkler system will be modified to accommodate the renovation area. New branch sprinkler piping will be extended from existing mains to new sprinkler head locations throughout the anatomy lab area. Sprinkler hazard classification will not change with the scope of this project.
New piping will be black steel with threaded, grooved, or welded fittings. Piping 2" and smaller will be schedule 40 and pipe 2.5" and larger will be schedule 10.
Sprinklers heads will be commercial, quick response, UL listed type. Sprinklers in areas having ceilings will be semi-recessed pendent design with a white finish and white ceiling cup. Concealed type sprinklers with white cover plates will be used in areas with gypsum board ceilings.

5.0 - APPENDIX

A. AUDIO VIDEO NARRATIVE

B. EXISTING DRAWINGS

- 1. Wittenbourg Building
- 2. Link Building
- 3. Johnson Building
- 4. General Education Building (GEB)

C. EQUIPMENT QUOTE

D. EXISTING IMAGES

- 1. Wittenbourg Building
- 2. Link Building
- 3. Johnson Building
- 4. General Education Building (GEB)

E. AUGUSTA UNIVERSITY TOUR IMAGES

A. AUDIO VIDEO NARRATIVE

UNIVERSITY OF TENNESSEE HEALTH SCIENCE CENTER

AUDIOVISUAL PROGRAM REPORT

MEMPHIS, TENNESSEE

July 25, 2018 | Version 1.1

waveguide

CONTENTS

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OVERVIEW

INTRODUCTION

The University of Tennessee Health Science Center (UTHSC) is planning a relocation and expansion of their gross anatomy lab into a new 22,590 square-foot facility.

The overall concept for the renovation is to create teaching laboratories, classrooms and student resource rooms that will be designed to support a variety of teaching methodologies including Technology Enable Active Learning (TEAL) pedagogical techniques.

Waveguide has been engaged by HOK, the project's Architect, to provide audiovisual consulting services to assist with development of the audiovisual (AV) technology program within the renovated facility. Working in cooperation with representatives of the UTHSC and HOK, Waveguide has prepared this report to summarize the planned systems and to serve as a basis for their design and implementation.

ABOUT THIS REPORT

This report identifies the rooms that will have AV capabilities, presents the AV use cases for these rooms and give a brief description of the equipment planned to support the use cases. A depiction of the physical layout for typical rooms is also included.

This report also establishes an estimated AV budget for the systems as described. This financial placeholder is what we anticipate UTHSC will pay an AV integrator to provide and install the systems.

This report is based on the consultant's previous experience on similar projects and information obtained during a meeting held on campus on March 8, 2018.

UTHSC AV STANDARDS AND PROGRAM IMPLEMENTATION

Efforts have been made to standardize the AV systems employed by the university, but the variety of use cases in this setting can create a challenge; therefore, a review of the campus AV standard will be required at systems design. The project team noted that this project would be an evolutionary (incremental) update to the AV standard. Certain models and manufacturers have been identified as campus standards to make support easier. The AV systems designs will employ these standards as well as any graphical user interface standards.

INFRASTRUCTURE COORDINATION: AV systems are heavily impacted by the room environment. Drawings and sketches will be used to identify the coordination items required for AV systems to function properly. Conduit, power, and data requirements will be communicated in the base building drawings. Room finishes, acoustical requirements, and video conferencing lighting requirements will also be coordinated. Although these items are not directly a part of the AV system, they must be addressed to achieve the best results.

AV CONTRACT DOCUMENTS: drawings and specifications document the AV equipment and functional intent of the AV systems. A qualified AV integrator will review these documents and provide pricing. Once under contract, the integrator will use this information to create shop drawings from which they build.

CONTROL SYSTEM SOFTWARE: Using a standardized graphical user interface is key to creating a consistent user experience. The graphical interface and its control code is provided by the AV integrator and coordinated with UTHSC.

02

SUBSYSTEMS

In addition to consistent standards, or Levels, of AV technology, all presentation will be comprised of a range of similar subsystems to deliver the programmed teaching or conferencing experience. These subsystems/features include:

SOURCE EQUIPMENT

To aid in ease of use and system reliability, a variety of sources should be available within the spaces. Specific spaces (as noted in the next section of the report) may include the following "in-room" AV sources:

IN-ROOM PC

AV STREAMING FEED

WIRELESS

HD CABLE/SATELLITE

WIRED INPUT(S)

AUXILIARY AV INPUT(S)

Additionally, systems could be designed with the following AV features:

AV SUBSYSTEMS/FEATURES

INTEGRATED AUDIO PROGRAM PLAYBACK

AV presentation spaces will be designed with program audio playback systems. In small to medium spaces, the presentation audio will be integrated into the flat-panel display loudspeakers. In larger spaces, integrated wall-mounted speakers or in-ceiling loudspeakers will be used.

SPEECH REINFORCEMENT

In larger spaces (typically those spaces with more than 50 seats) presenters' speech will be reproduced through a speech reinforcement system. This system is typically supported with in-ceiling loudspeakers.

ASSISTIVE LISTENING

Assistive listening systems (ALS) are comprised of transmitters and receivers with headphones that allow individual volume control of audio amplified in the room by the house sound system. These systems will be provided to comply with the Americans with Disabilities Act (ADA). Assistive listening systems may be portable or integrated depending on the use case of the space.

INTEGRATED ROOM CONTROLS

In order to facilitate a seamless presentation experience, room controls will be integrated into the AV systems design. This will allow for presenter control over lighting, motorized window shades, projection screens, etc., and provide automation for the presentation environments through programmed macros to set the presentation environment to its optimal setting for a given event or task.

AV SEND TO AV CONTROL

Program audio, speech, video content, and in-room cameras, as applicable, will be routed to the AV Control room allowing for a variety of functions including overflow, videoconferencing, and recording.

INTEGRATED AUDIO TELECONFERENCING

In medium to larger spaces, audio teleconferencing (ATC) will be integrated into the facility. This will be accomplished with wired and wireless microphones, based on space configuration, and audio digital signal processors (DSPs).

INTEGRATED HD VIDEOCONFERENCING

Select spaces in the facility will be designed with integrated high-definition video teleconferencing (VTC) systems. Integrated microphones and cameras will be located in the rooms. The current design approach would centralize VTC codecs to the central AV Control Room for resource sharing, network bandwidth management, and cost savings.

ANNOTATION

Video annotation using tools built into the in-room PC operating system or loaded software will be accessed via touch sensitive flat panel display. In classrooms a small preview display will support annotation at the lectern. In other spaces the primary display itself may support touch interaction. Annotation of non-PC content will be predicated on the capabilities of the in-room PC and AV system architecture and may vary by room.

RICH MEDIA CAPTURE

Rich media capture creates a three-element, unified recording of a presentation (audio, content, and presenter's video), allowing for the synchronous (live streaming) and asynchronous (video-on demand) viewing of a presentation event or training session. Recordings can be indexed for keyword searches, taking the user directly to the desired portion of the recorded presentation. Systems will be designed with automated controls allowing the presenter to engage the system by simply pressing "record" on their touch panel.

ROOM SCHEDULING

Room scheduling systems typically consist of small displays wall-mounted next to doors to irregularly scheduled spaces with graphical indication of the rooms current status and detailed scheduling information (e.g. the name, start and stop times of events). The displays may be interactive and allow potential room users to investigate the availability of the room and schedule an event for the room from the display.

DISPLAYS

Depending on the programmatic needs and size of the various spaces different display types and sizes will be used to present the primary video image. Specific spaces (as noted in the next section of the report) may include the following display types:

FLAT PANEL DISPLAYS

FRONT PROJECTION

03

FLOOR PLANS

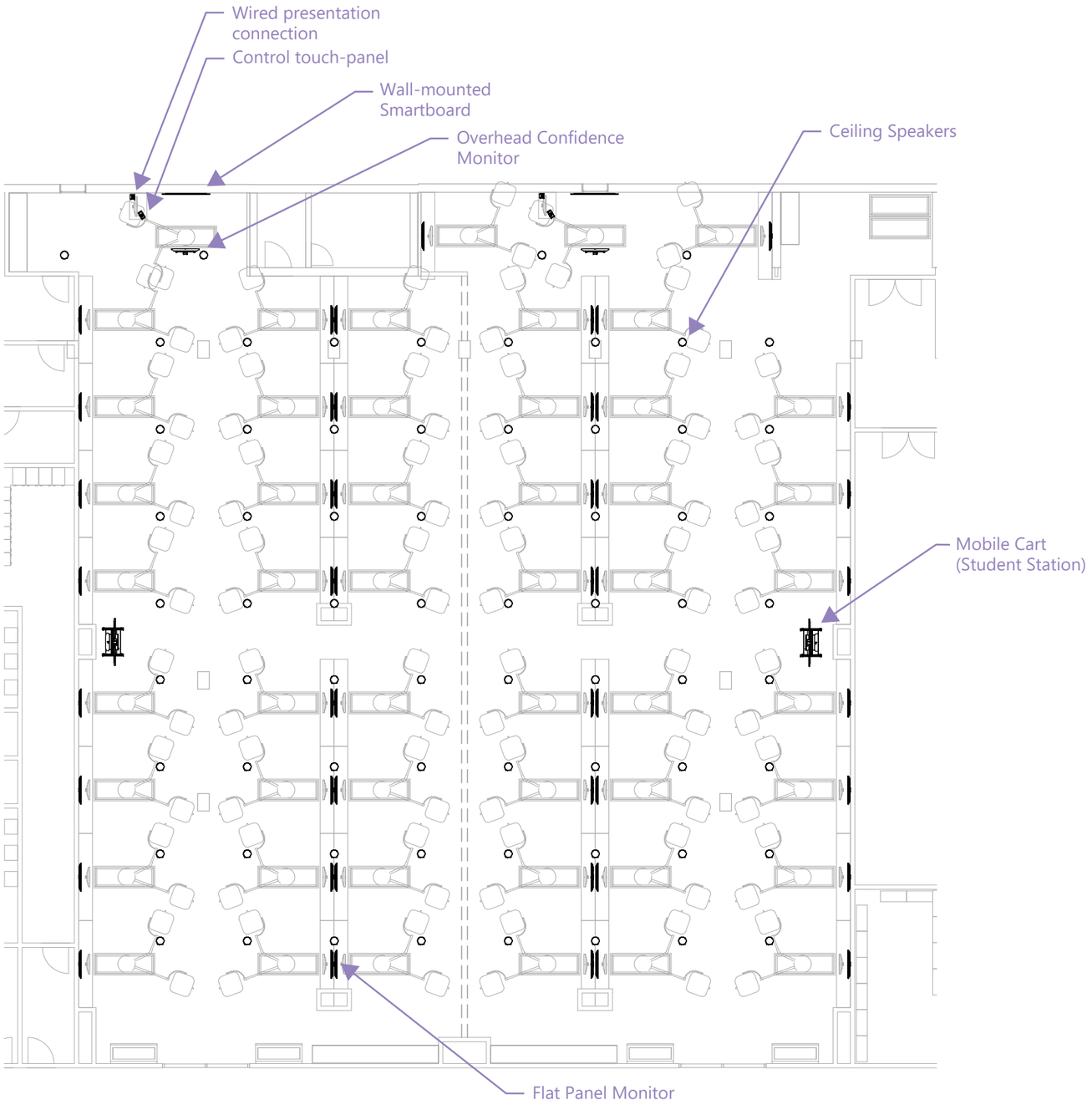
LEVEL 3

LEGEND

- Divisible Gross Anatomy Lab
- Flex Lab
- Student Resource Center
- Anatomy Classroom
- Digital Signage

04

SPECIFIC SYSTEMS



DIVISIBLE GROSS ANATOMY LAB

The gross anatomy lab is being planned as a 50-table two-way divisible space with two instructor stations. The sub-divided space should be capable of hosting classroom sessions simultaneously so, acoustic separation will be important. The instructor will control the classroom from a fully integrated teaching station which content will be distributed to each of the student dissection tables and supporting the following use cases

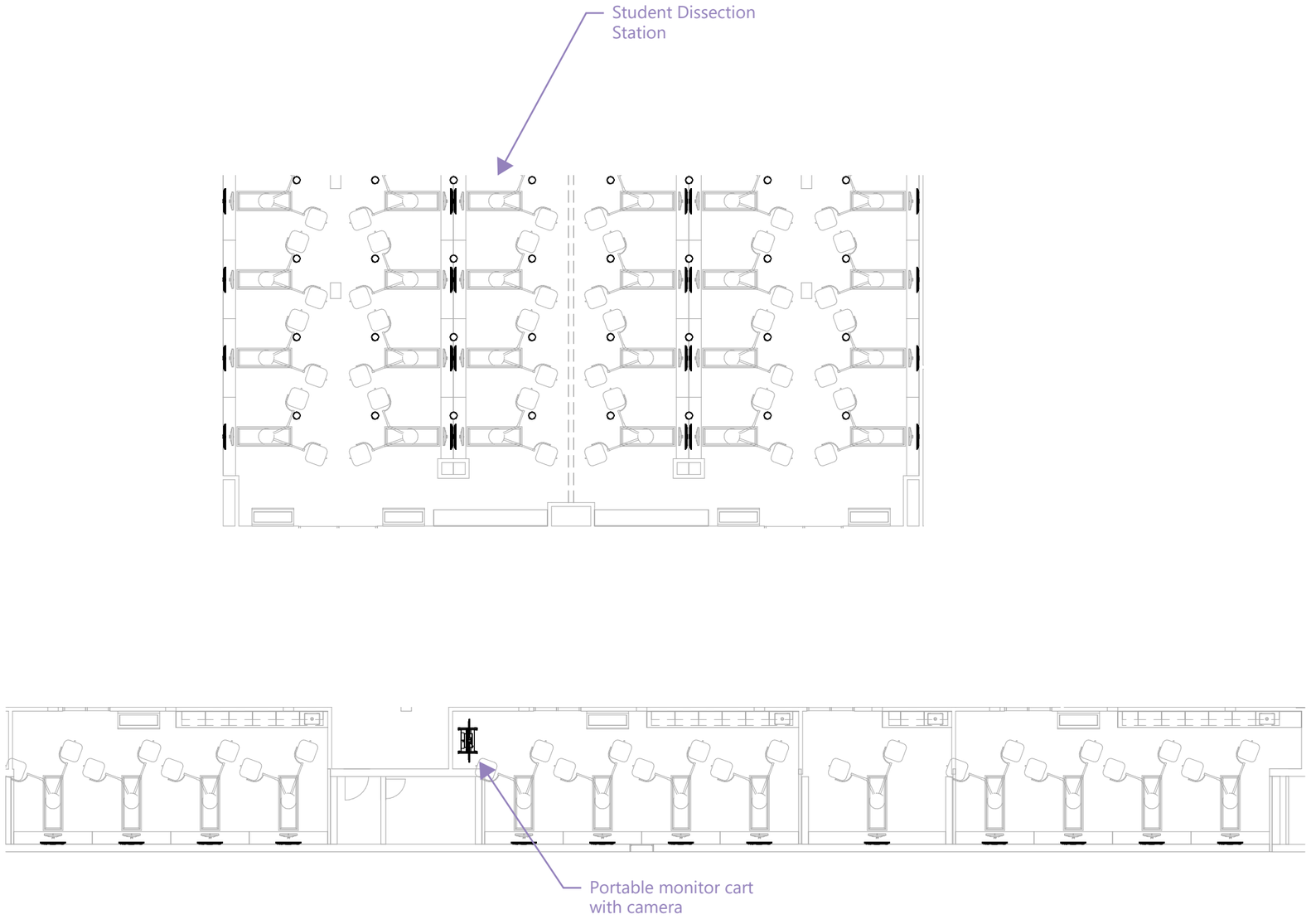
USE CASES

- Present locally with speech reinforcement
- Present program audio playback (audio with video sources)
- Present from built-in PC
- Present from a user device (wired)
- Present from an auxiliary lab device (wired)
- Present wirelessly, including support for mobile devices
- Present dissection table demonstrations
- Present SmartBoard® annotations
- View campus streaming sources
- View and distribute feed from mobile cart (student station)
- Record class session with rich media system

EXCLUDED: Distance education

SYSTEM DESCRIPTION

- Speech reinforcement with distributed overhead speakers
- Wall-mounted annotation display
- Teaching workstation with source equipment and local PC monitor
- Wireless presentation gateway
- Ceiling mounted confidence video monitor (at dissection table)
- Table or ceiling mounted camera (for dissections)
- Workstation cable management with regular power, USB power and digital video (HDMI) connections
- Campus standard mediasite® recording system
- User engaged source equipment will be mounted in the instructor's workstation
- Control, routing and non-user equipment will be located in a technician accessible closet
- System control via campus standard touch panel with illuminated feedback
- Assistive listening system (ALS)



STUDENT DISSECTION TABLES AND FLEX LABS (1-4 STATIONS)

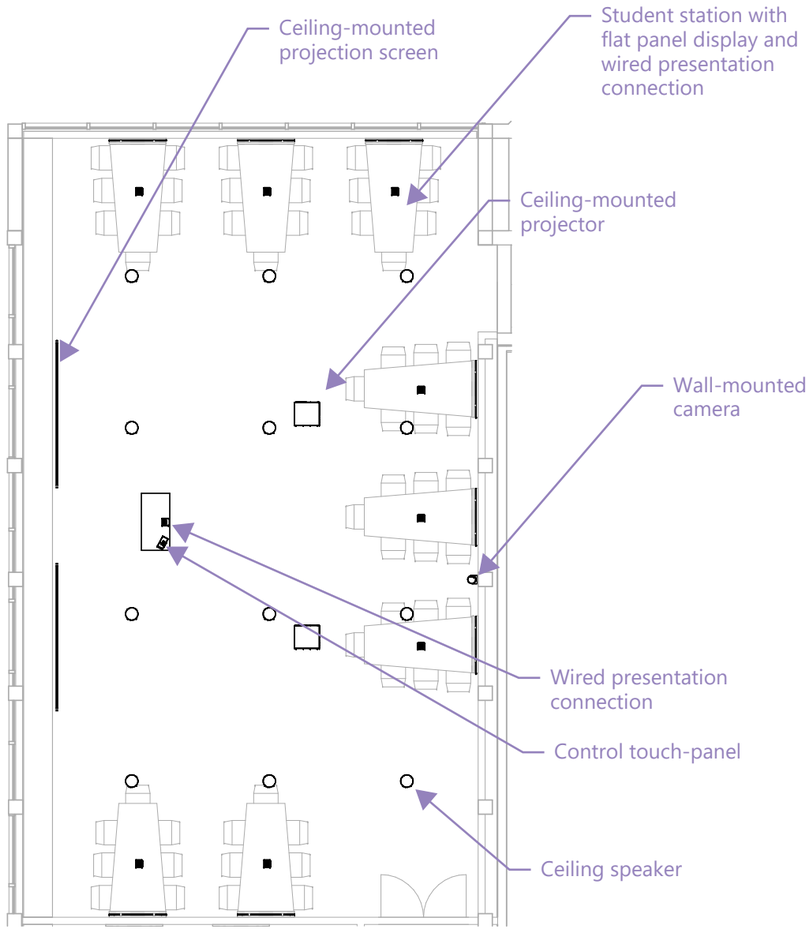
Student dissection stations will be designed with dedicated monitor to for local source(s) and feed from instructor's station.

USE CASES

- View class materials on local PC
- Listen to instructor's presentation audio
- View instructor's content from the teaching station
- View other student stations (instructor controlled)
- View campus streaming sources
- Present dissection table contents to class (one table per divisible space and flex lab)
- Record student dissection activities (from cart)

SYSTEM DESCRIPTION

- Wall-mounted display with integral loudspeakers
- In wall cable management with regular power, USB power and local connection for camera cart
- System control via pushbuttons with illuminated feedback
- Camera cart (one per division and one shared among the flex rooms)
- Flex labs should be able to directly share content from the shared camera cart between the labs



STUDENT RESOURCE CENTER

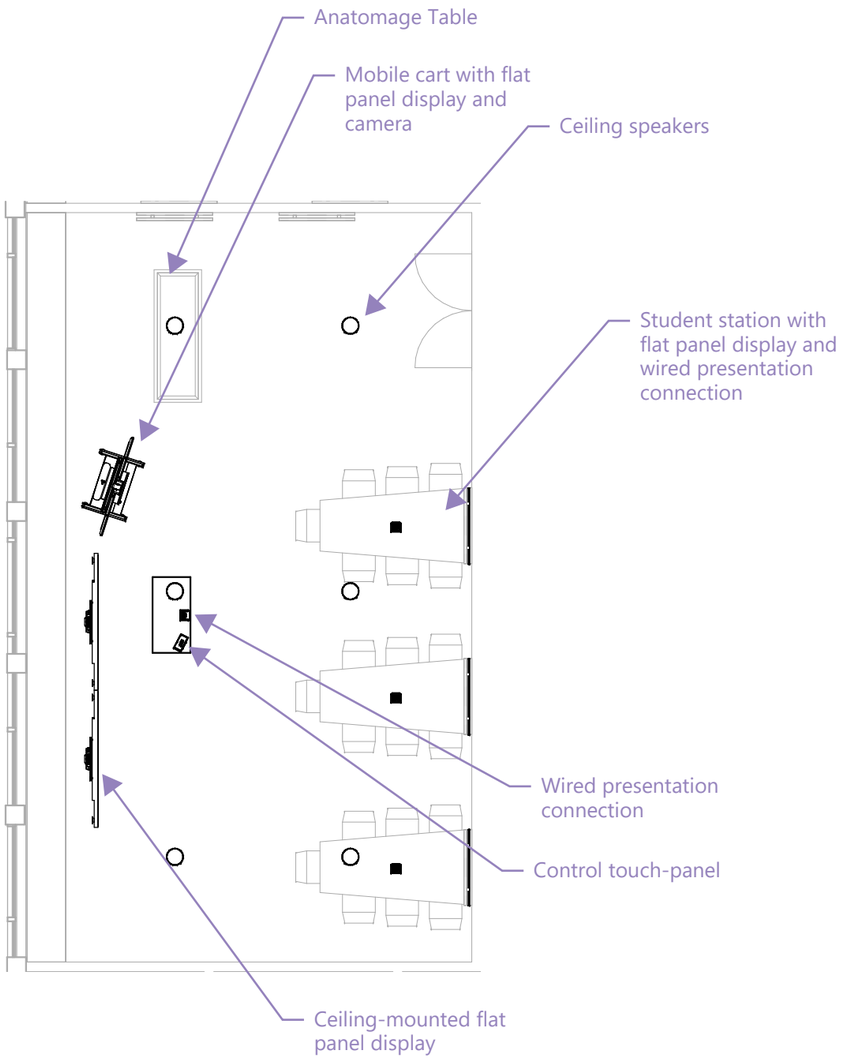
Student resource center will be designed as a Team Based Learning (TBL) environment.

USE CASES

- Present program audio playback (audio with video sources)
- Present from built-in PC
- Present from a user device (wired)
- Present wirelessly, including support for mobile devices
- View campus streaming sources
- Record class session with rich media system
- Present via wired or wireless connections at each table
- Share each table's content with the class

SYSTEM DESCRIPTION

- Wall mounted display
- Overhead speakers for audio playback
- Teaching workstation with source equipment and local PC monitor
- Workstation cable management with regular power, USB power and digital video (HDMI) connections
- Wireless presentation gateway
- Campus standard mediasite® recording system
- User engaged source equipment will be mounted in the instructor's workstation
- Instructor's system control via campus standard touch panel with illuminated feedback
- Control, routing and non-user equipment will be located in a technician accessible closet
- Group table – wall or table mounted display with integral loudspeakers
- Group table - cable management with regular power, USB power and a digital video (HDMI) connection
- Group table - control via pushbuttons with illuminated feedback integrated into tabletop cable management



ANATOMY CLASSROOM

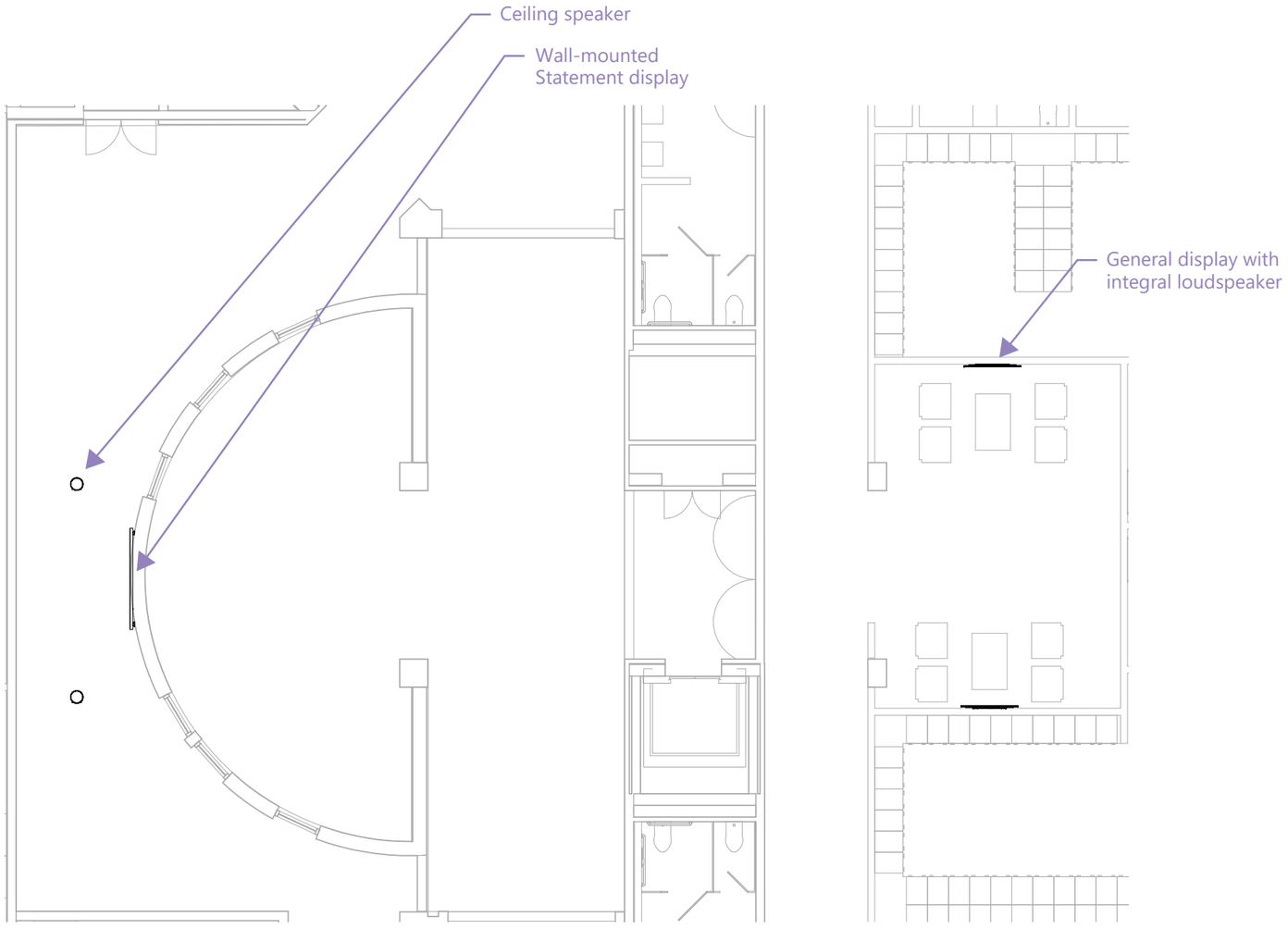
Anatomy classrooms will be designed similarly to the student resource center with the addition of an Anatomage® table and cart based camera for small dissection instruction.

USE CASES

- Present program audio playback (audio with video sources)
- Present from built-in PC
- Present from a user device (wired)
- Present wirelessly, including support for mobile devices
- View campus streaming sources
- Record class session with rich media system
- Present via wired or wireless connections at each table
- Share each table's content with the class
- Share Anatomage® table with class
- Present small dissections to group stations

SYSTEM DESCRIPTION

- Wall mounted large display or dual display system
- Overhead speakers for audio playback
- Teaching workstation with source equipment and local PC monitor
- Workstation cable management with regular power, USB power and digital video (HDMI) connections
- Wireless presentation gateway
- Campus standard mediasite® recording system
- User engaged source equipment will be mounted in the instructor's workstation
- Instructor's system control via campus standard touch panel with illuminated feedback
- Control, routing and non-user equipment will be located in a technician accessible closet
- Group table – wall or table mounted display with integral loudspeakers
- Group table - cable management with regular power, USB power and a digital video (HDMI) connection
- Group table - control via pushbuttons with illuminated feedback integrated into tabletop cable management
- Anatomage® table
- Cart based camera system



DIGITAL SIGNAGE

Digital signage system will have both local corridor information displays as well as a display that creates a sense of arrival in main entry. Each display will be capable of presenting unique content.

USE CASES

- Show guest welcome information
- Show internal communications
- Show campus branding
- Show wayfinding

SYSTEM DESCRIPTION

- Wall mounted display with overhead loudspeakers (statement display)
- Wall mounted displays with integral loudspeaker (general displays)
- Signage players
- Centralized content/display control

05

BUDGET

ESTIMATED COST OF CONSTRUCTION OVERVIEW

The AV systems budget summary on the right provides an overview of the entire AV program being considered by this program at this time. In some cases, assumptions as to programmatic requirements have been made to provide real-world "placeholders" for systems for which specific AV requirements have not be finalized. A contingency of ±10% has been included to reflect potential budget adjustments due to changes in equipment costs, modifications to the system conceptual design and variations in labor costs among AV contractors. Note: All equipment in the AV budgets herein are based upon new equipment, unless specifically noted in the room descriptions.

The budgets are based on preliminary design concepts and on our past experience with similar projects. The AV budgets include AV installation factors, (i.e., equipment mark-ups, labor, etc,) but do not include taxes, potential general contractor mark-ups should the AV contractor work as a sub-contractor to the GC, nor do they include design fees. Likewise, the budget does not include base building infrastructure costs such as power, data, conduit, house lighting, architectural or HVAC costs that may be required to support the AV system requirements. These additional costs will need to be incorporated into the base building budgets by the project cost estimators, architect, and/or engineers.

If the project AV budget does not support the full program, it may be necessary to designate some of the technical systems described in this report as design alternates and/or to defer some systems from initial purchase. However, the studio should be designed with the necessary infrastructure, i.e., power, conduit, data connectivity, light control, room layout, etc, to accommodate the full AV program.

University of Tennessee Memphis Health Science Center Preliminary Budget 4-2-2018		Budget Range A		Budget Range B	
Space	Quanitity	Unit Cost	Extended	Unit Cost	Extended
Gross Anatomy (per division)	2	$ 247,000	$ 494,000	$ 292,000	$ 584,000
Flex 1 Station (w cart)	1	31,800	$ 31,800	$ 38,000	$ 38,000
Flex 2 Stations	2	13,600	$ 27,200	$ 16,000	$ 32,000
Flex 4 Stations	2	27,200	$ 54,400	$ 32,000	$ 64,000
Student Resource Center	1	126,400	$ 126,400	$ 166,000	$ 166,000
Anatomy Classroom	1	147,400	$ 147,400	$ 199,000	$ 199,000
General Signage	4	6,500	$ 26,000	$ 7,500	$ 30,000
Statement Wall	1	80,000	$ 80,000	$ 150,000	$ 150,000
AV-IDF	1	45,000	$ 45,000	$ 65,000	$ 65,000
		Subtotal	$1,032,200	to	$1,328,000
		5% Contingency	$ 51,610		$ 66,400
		Budget Range A	$1,083,810	to	$1,394,400

ESTIMATED COST OF CONSTRUCTION ASSUMPTIONS

The technology budgets will continue to be refined throughout the course of design as new technologies become available. As a procedural note, it is anticipated that the specific AV system bid package will be released approximately eight to 12 months prior to substantial completion of the tenant improvements so that equipment is not outdated upon the opening of the facility. The consultant will coordinate with University of Tennessee as to the various options available for the delayed bidding of these technology systems.

The AV systems budget herein assumes all equipment and installation labor, including cabling and the installation of cabling, will be competitively bid as one complete package with the exception of personal computers, laptops, iPads, etc. as noted elsewhere herein.

MAINTENANCE AND UPGRADE COSTS

In addition to the upfront AV and related infrastructure costs, ongoing maintenance and upgrade costs could be significant for this facility for the AV systems. First year service agreements/warranties are typically included in initial installation price. However, service agreements for additional years should be considered and appropriate funding should be established. The Consultant can discuss strategies for AV service contracts with University of Tennessee at an appropriate point in the project. Likewise, while the Consultant will make every effort to design systems to be as future-ready as is possible/practical, AV systems will eventually reach the end of their useful life or become outdated. From the Consultant's experience, equipment upgrade/replacement costs could represent an additional 25% to 33% of the initial system cost within the first 4 to 5 years of ownership.

END OF LIFE STRATEGY

Ultimately, AV equipment will reach the end of its useful life. We recommend that University of Tennessee develop a plan to recycle this technology. We recommend the use of products whose manufacturers have an e-waste program that supports recycling and who possibly offer buy-back incentives towards replacement equipment and upgrades. We also recommend the use of AV contractors who participate in equipment recycling programs.

OTHER UPFRONT COSTS

There are several base-building infrastructure elements that support the AV systems and/or affect the quality of these spaces. These base building systems are not part of the specific AV package to be designed, nor are they part of the AV budget. Additionally, some Owner-furnished items are required to support the AV system. These elements will have an impact on the overall total project budget. Specifically, these items include:

- Power and back box/conduit requirements for the AV systems
- Owner furnished equipment to be located in various collaboration/learning spaces
- Projection screens, marker boards and window treatments (which are typically included in the architect's specifications)
- Acoustical treatments such as acoustical wall panels for improved room acoustics and possible mechanical noise control measures such as silencers for lower background noise levels in important meeting spaces, instructional spaces and particularly in videoconference spaces
- Enhanced wall constructions and door hardware for improved sound isolation between adjacent meeting/learning spaces or other acoustically sensitive spaces
- Enhanced lighting systems to provide zoned, preset capable room lighting, as well as motorized window shades to provide proper lighting for AV presentations/videoconference. Our AV budget includes control of these systems from an AV control interface.

Accurate budgeting for the aforementioned items will require coordination among the design team members and project cost estimators during the design effort. While some of the above items do not have a significant budget impact in comparison to the total project budget, all items noted above should be considered as part of the cost of providing the high-quality AV-enhanced environment discussed in this report.

Atlanta
New York
Los Angeles
Chicago
Houston
Philadelphia
Las Vegas
Raleigh
Tampa

One West Court Square, Suite 300
Decatur, GA 30030
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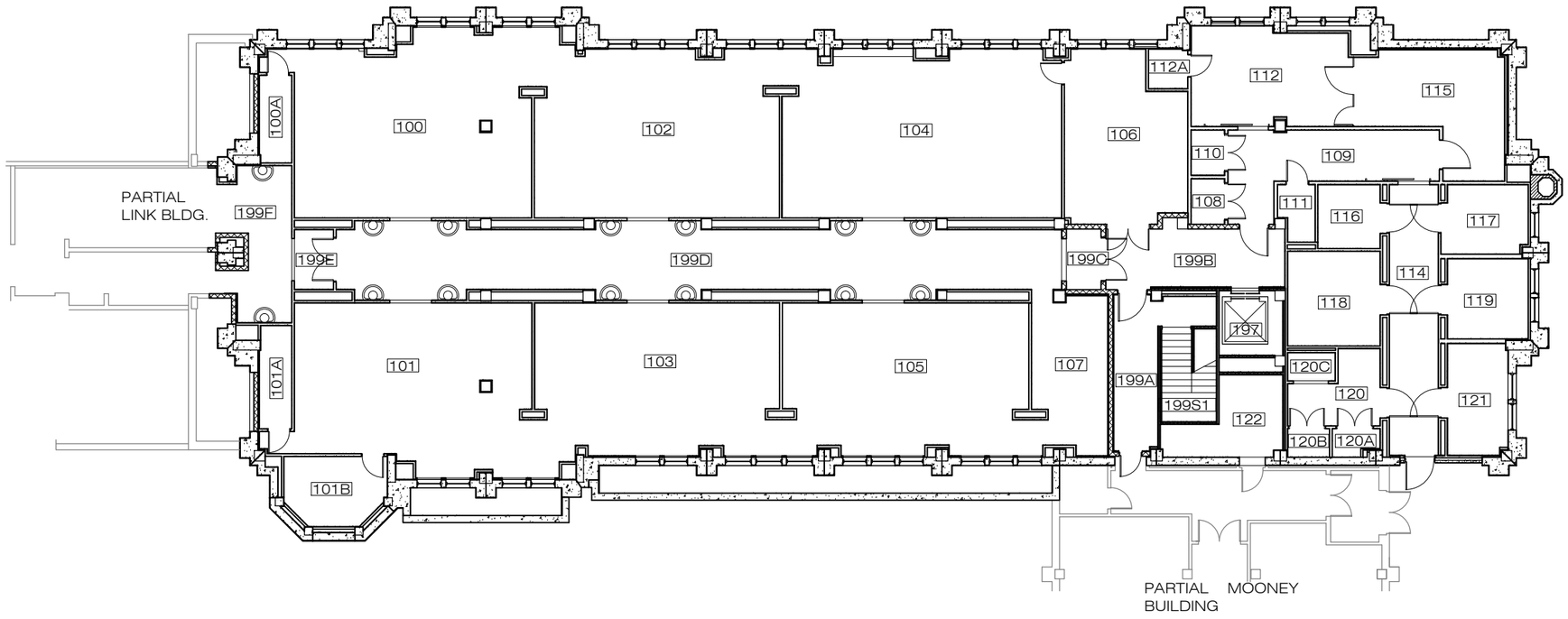
B. EXISTING DRAWINGS

1. Wittenborg Building
2. Link Building
3. Johnson Building
4. General Education Building (GEB)



SPACE INFO	
ROOM	AREA
100	875 SF
100A	57 SF
101	797 SF
101A	67 SF
101B	133 SF
102	843 SF
103	764 SF
104	929 SF
105	752 SF
106	394 SF
107	239 SF
108	31 SF
109	259 SF
110	31 SF
111	39 SF
112	315 SF
112A	31 SF
114	269 SF
115	299 SF
116	85 SF

SPACE INFO	
ROOM	AREA
117	119 SF
118	182 SF
119	136 SF
120	113 SF
120A	24 SF
120B	24 SF
120C	27 SF
121	140 SF
122	144 SF
197	82 SF
199A	138 SF
199B	219 SF
199C	43 SF
199D	1012 SF
199E	47 SF
199F	194 SF
199S1	138 SF
1ST FLOOR	9991 SF
GROSS AREA	11811 SF

2103 - WITTENBORG BUILDING
FIRST FLOOR

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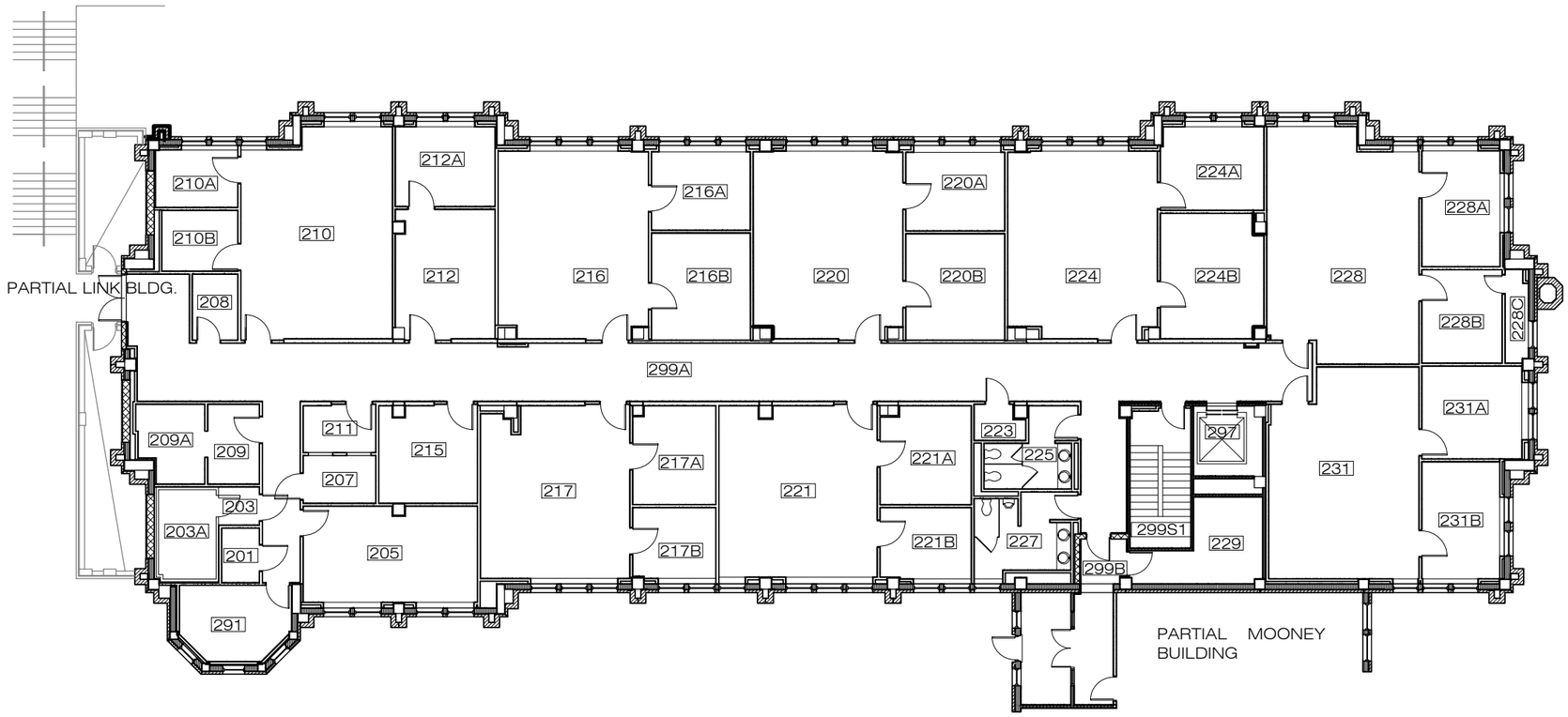

SPACE INFO	
ROOM	AREA
201	36 SF
203	27 SF
203A	89 SF
205	287 SF
207	60 SF
208	52 SF
209	71 SF
209A	85 SF
210	531 SF
210A	82 SF
210B	80 SF
211	59 SF
212	220 SF
212A	138 SF
215	164 SF
216	482 SF
216A	134 SF
216B	184 SF
217	438 SF
217A	140 SF
217B	101 SF
220	479 SF
220A	134 SF
220B	181 SF
221	467 SF

SPACE INFO	
ROOM	AREA
221A	152 SF
221B	112 SF
223	29 SF
224	476 SF
224A	149 SF
224B	219 SF
225	99 SF
227	130 SF
228	577 SF
228A	156 SF
228B	130 SF
228C	36 SF
229	139 SF
231	517 SF
231A	160 SF
231B	158 SF
291	133 SF
295	3 SF
297	80 SF
299A	1478 SF
299B	35 SF
299S1	146 SF
2ND FLOOR	9834 SF
GROSS AREA	11536 SF

2103 - WITTENBORG BUILDING
SECOND FLOOR

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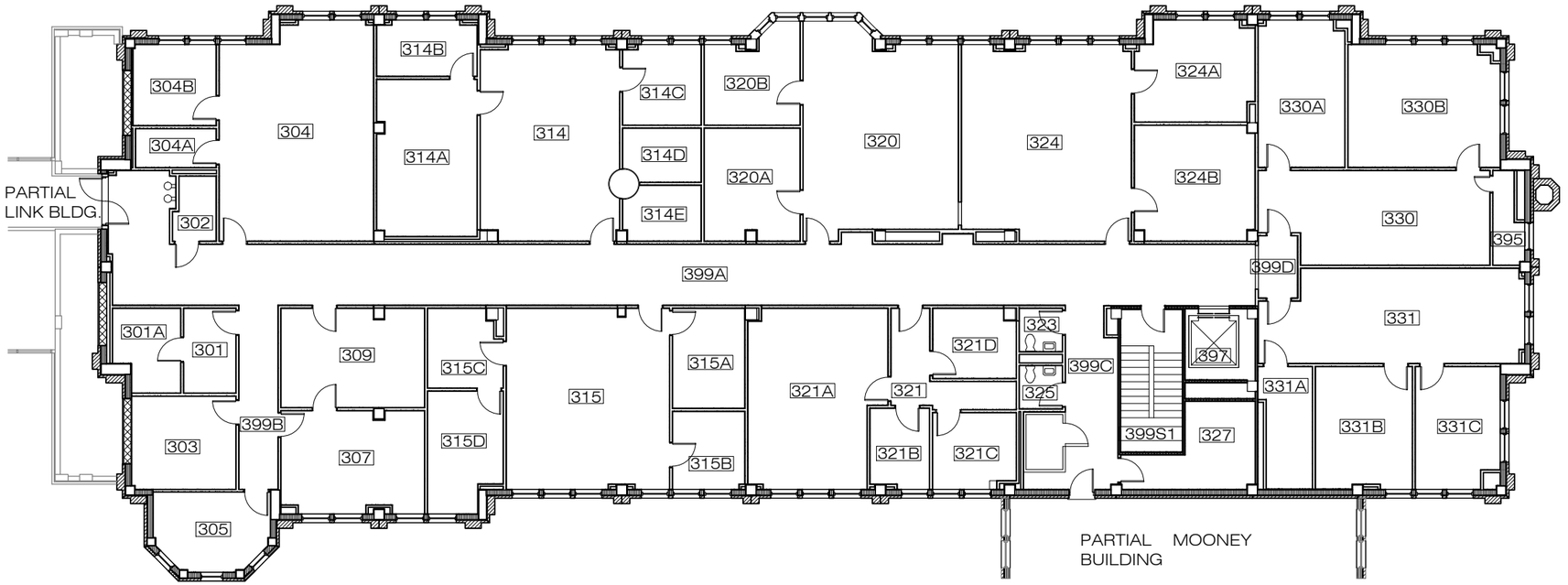

SPACE INFO	
ROOM	AREA
301	74 SF
301A	88 SF
302	44 SF
303	163 SF
304	547 SF
304A	53 SF
304B	113 SF
305	143 SF
307	241 SF
309	238 SF
314	454 SF
314A	263 SF
314B	92 SF
314C	105 SF
314D	71 SF
314E	73 SF
315	494 SF
315A	121 SF
315B	94 SF
315C	95 SF
315D	143 SF
320	513 SF
320A	179 SF
320B	141 SF
321	104 SF
321A	393 SF

SPACE INFO	
ROOM	AREA
321B	79 SF
321C	104 SF
321D	96 SF
323	31 SF
324	545 SF
324A	194 SF
324B	231 SF
325	31 SF
327	140 SF
330	346 SF
330A	212 SF
330B	309 SF
331	401 SF
331A	100 SF
331B	197 SF
331C	169 SF
395	41 SF
397	82 SF
399A	1277 SF
399B	118 SF
399C	207 SF
399D	41 SF
399S1	148 SF
3RD FLOOR	10139 SF
GROSS AREA	11527 SF

2103 - WITTENBORG BUILDING
THIRD FLOOR

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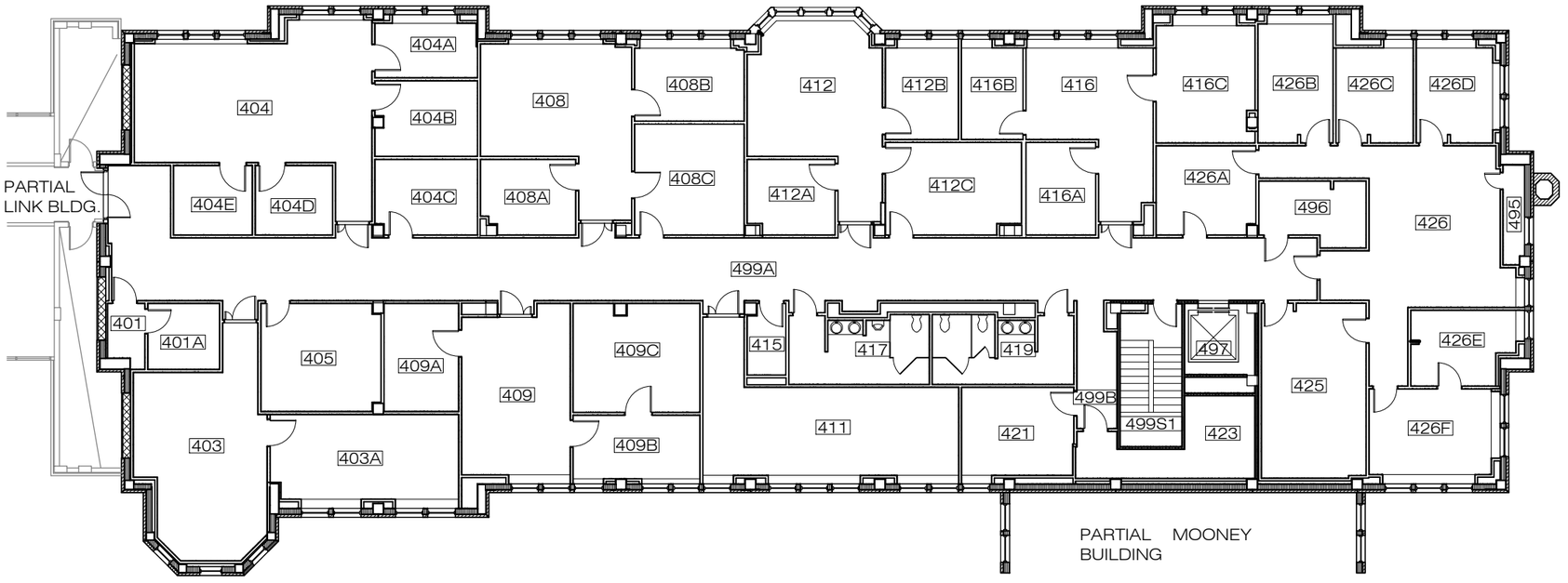
Health Science Center



SPACE INFO

ROOM	AREA
401	37 SF
401A	79 SF
403	402 SF
403A	265 SF
404	543 SF
404A	93 SF
404B	129 SF
404C	128 SF
404D	90 SF
404E	92 SF
405	216 SF
408	342 SF
408A	117 SF
408B	134 SF
408C	204 SF
409	295 SF
409A	136 SF
409B	135 SF
409C	229 SF
411	427 SF
412	338 SF
412A	109 SF
412B	112 SF
412C	207 SF
415	44 SF

SPACE INFO

ROOM	AREA
416	267 SF
416A	108 SF
416B	94 SF
416C	192 SF
417	155 SF
419	157 SF
421	165 SF
423	162 SF
425	307 SF
426	513 SF
426A	147 SF
426B	150 SF
426C	123 SF
426D	121 SF
426E	122 SF
426F	175 SF
495	35 SF
496	106 SF
497	82 SF
499A	1426 SF
499B	79 SF
499S1	143 SF
4TH FLOOR	9736 SF
GROSS AREA	11477 SF

2103 - WITTENBORG BUILDING
FOURTH FLOOR

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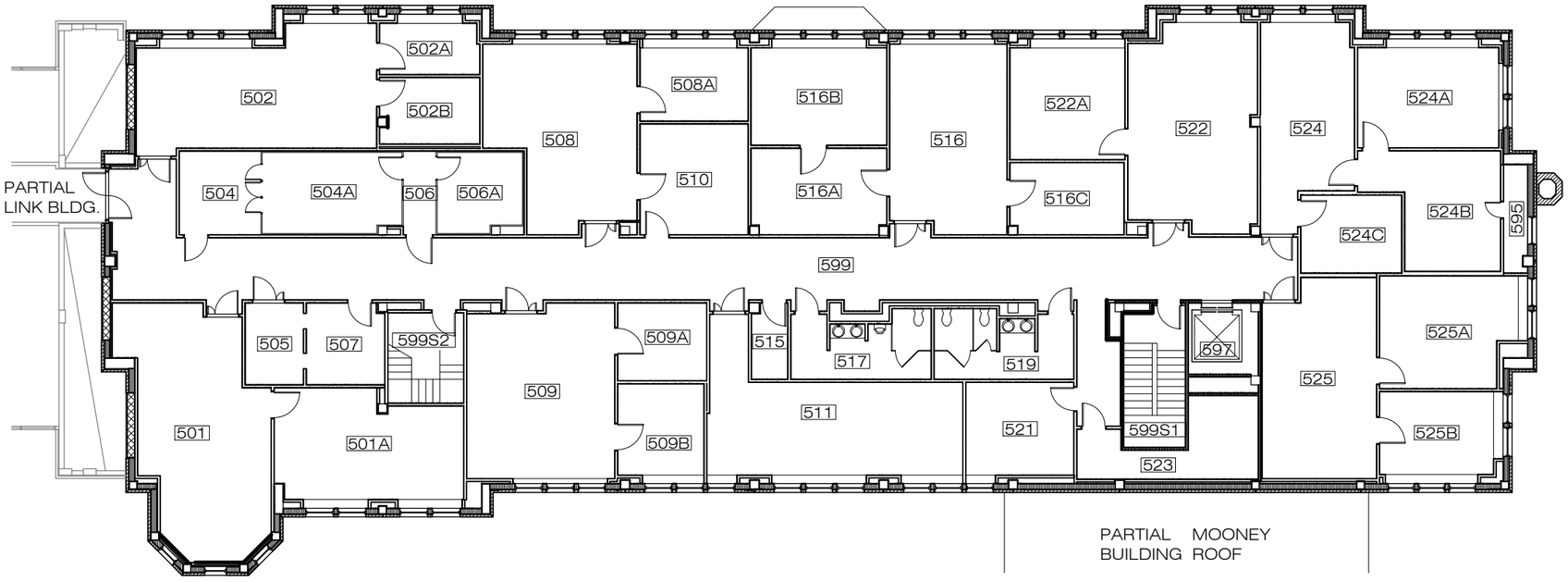

SPACE INFO	
ROOM	AREA
501	511 SF
501A	326 SF
502	448 SF
502A	85 SF
502B	110 SF
504	114 SF
504A	187 SF
505	80 SF
506	46 SF
506A	112 SF
507	106 SF
508	417 SF
508A	133 SF
509	423 SF
509A	116 SF
509B	132 SF
510	201 SF
511	443 SF
515	45 SF
516	366 SF
516A	195 SF
516B	223 SF

SPACE INFO	
ROOM	AREA
516C	137 SF
517	144 SF
519	152 SF
521	168 SF
522	432 SF
522A	216 SF
523	168 SF
524	292 SF
524A	238 SF
524B	228 SF
524C	132 SF
525	372 SF
525A	245 SF
525B	159 SF
595	43 SF
597	83 SF
599	1485 SF
599S1	143 SF
599S2	115 SF
5TH FLOOR	9774 SF
GROSS AREA	11434 SF

2103 - WITTENBORG BUILDING
FIFTH FLOOR

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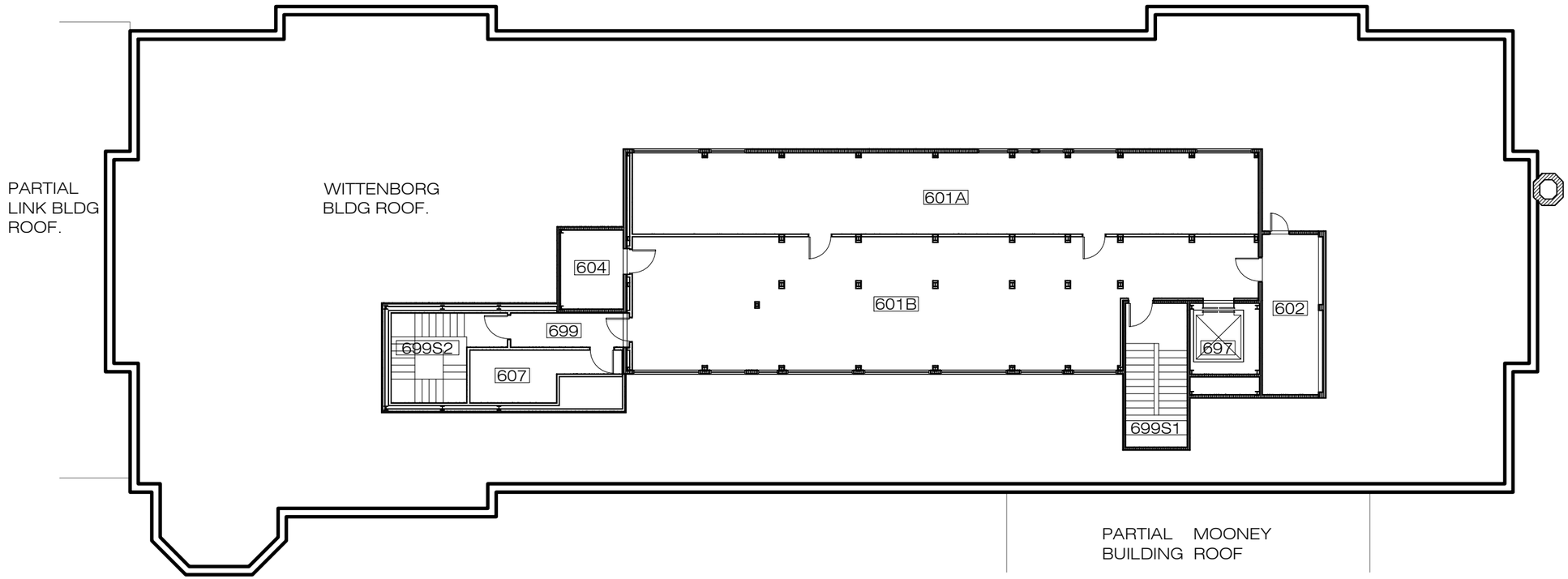

SPACE INFO

ROOM	AREA
601A	856 SF
601B	1237 SF
602	152 SF
604	86 SF
607	104 SF
697	83 SF
699	68 SF
699S1	150 SF
699S2	138 SF
6TH FLOOR	2874 SF
GROSS AREA	3270 SF

2103 - WITTENBORG BUILDING
SIXTH FLOOR

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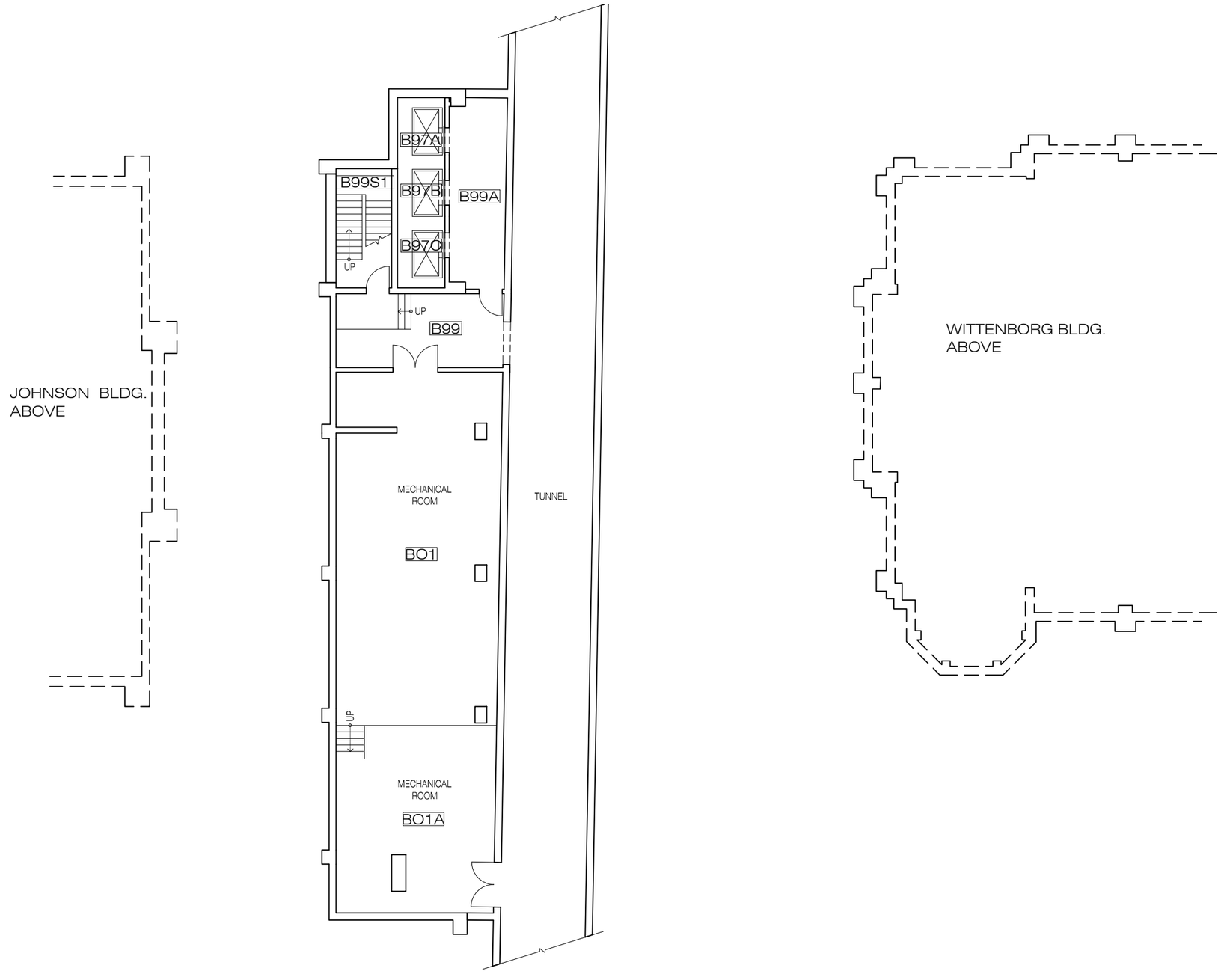

SPACE INFO

ROOM	AREA
B97A	60 SF
B97B	60 SF
B97C	60 SF
B99	246 SF
B99A	210 SF
B99S1	132 SF
BASEMENT	2481 SF
BO1	1132 SF
BO1A	583 SF
GROSS AREA	2889 SF

2194 - LINK BUILDING
BASEMENT /TUNNEL

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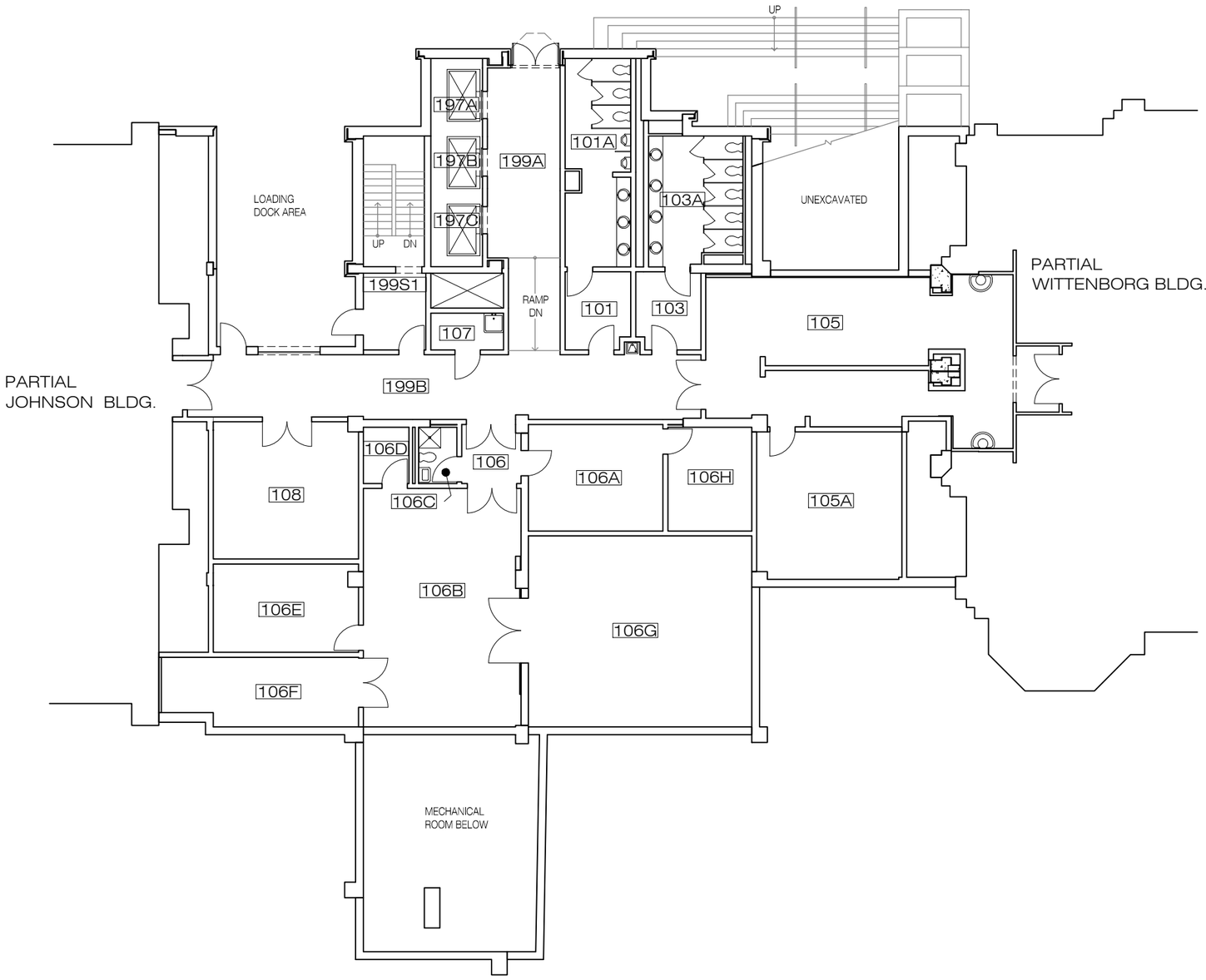

SPACE INFO

ROOM	AREA
101	83 SF
101A	219 SF
103	82 SF
103A	194 SF
105	525 SF
105A	354 SF
106	57 SF
106A	238 SF
106B	617 SF
106C	36 SF
106D	43 SF
106E	210 SF
106F	215 SF
106G	707 SF
106H	144 SF
107	44 SF
108	329 SF
197A	60 SF
197B	60 SF
197C	60 SF
199A	312 SF
199B	539 SF
199S1	214 SF
1ST FLOOR	5341 SF
GROSS AREA	7617 SF

2194 - LINK BUILDING
FIRST FLOOR

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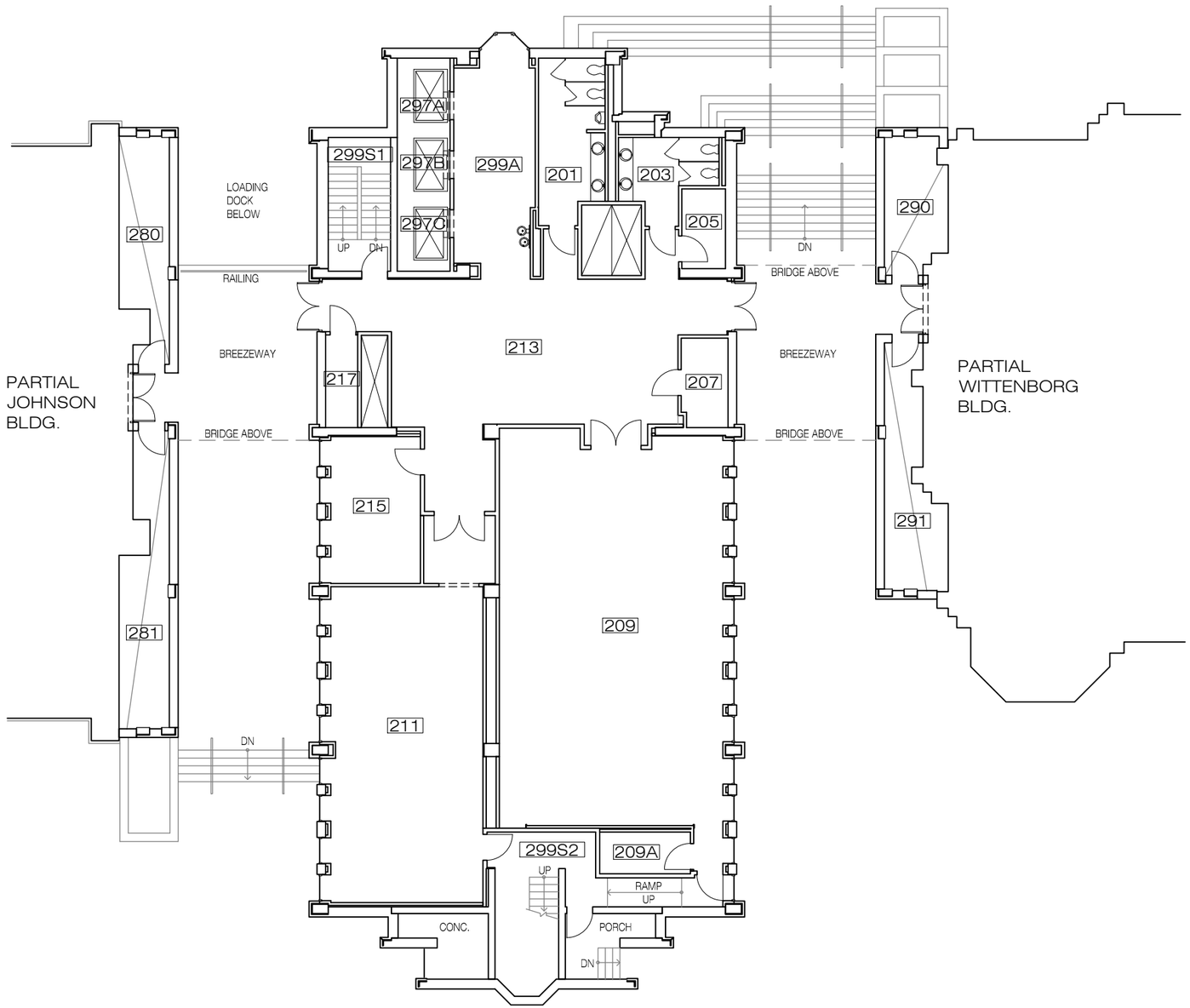
Health Science Center



SPACE INFO

ROOM	AREA
201	166 SF
203	105 SF
205	55 SF
207	65 SF
209	1438 SF
209A	60 SF
211	869 SF
213	935 SF
215	224 SF
217	47 SF
280	159 SF
281	199 SF

SPACE INFO

ROOM	AREA
290	128 SF
291	182 SF
297A	60 SF
297B	60 SF
297C	60 SF
299A	282 SF
299S1	132 SF
299S2	268 SF
2ND FLOOR	5493 SF
GROSS AREA	6589 SF

2194 - LINK BUILDING
SECOND FLOOR

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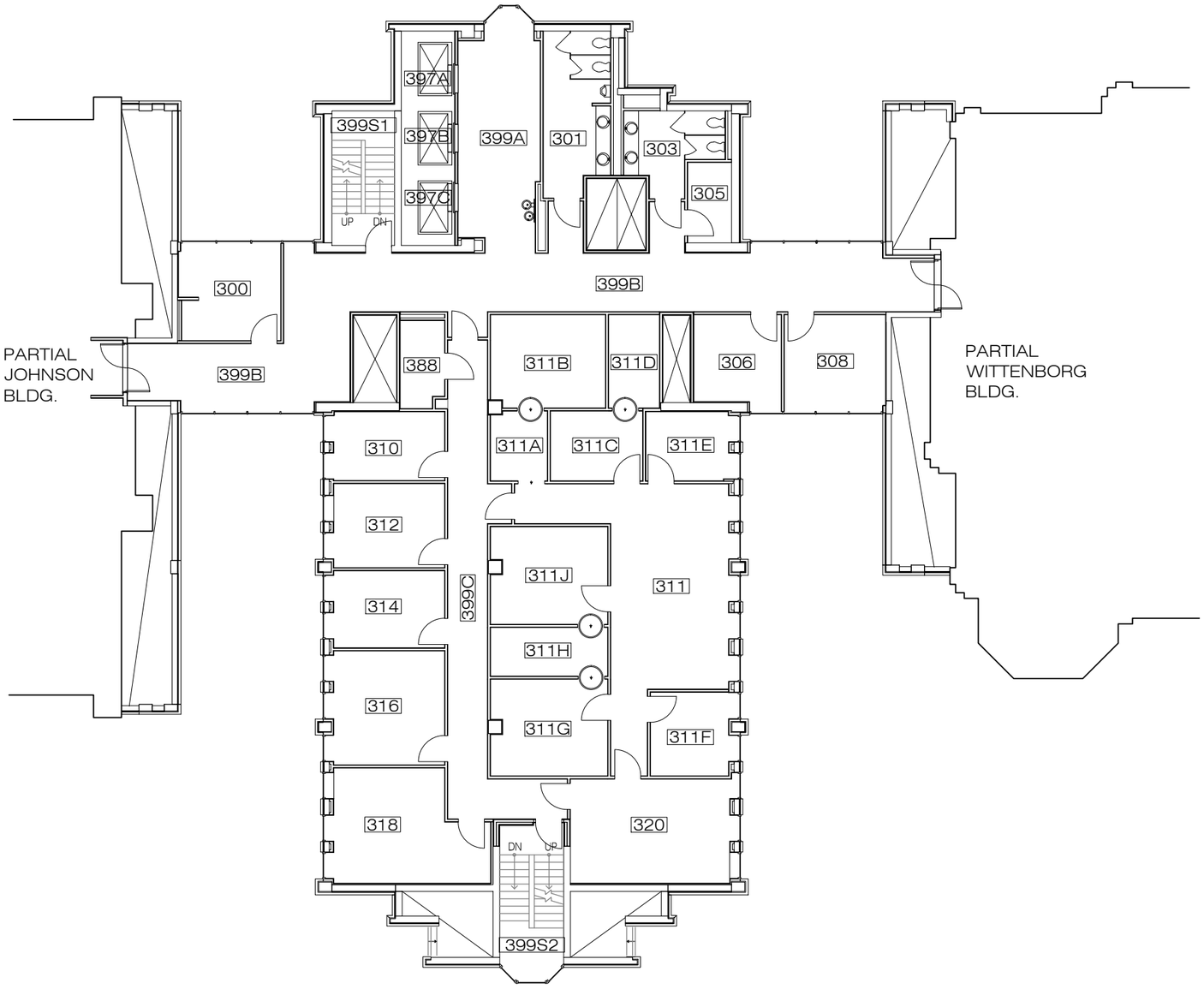

SPACE INFO	
ROOM	AREA
300	152 SF
301	165 SF
303	104 SF
305	55 SF
306	123 SF
308	153 SF
310	126 SF
311	506 SF
311A	61 SF
311B	165 SF
311C	100 SF
311D	74 SF
311E	97 SF
311F	110 SF
311G	174 SF
311H	89 SF
311J	176 SF

SPACE INFO	
ROOM	AREA
312	149 SF
314	140 SF
316	208 SF
318	251 SF
320	267 SF
388	59 SF
397A	60 SF
397B	60 SF
397C	60 SF
399A	282 SF
399B	941 SF
399C	361 SF
399S1	132 SF
399S2	152 SF
3RD FLOOR	5553 SF
GROSS AREA	7567 SF

2194 - LINK BUILDING
THIRD FLOOR

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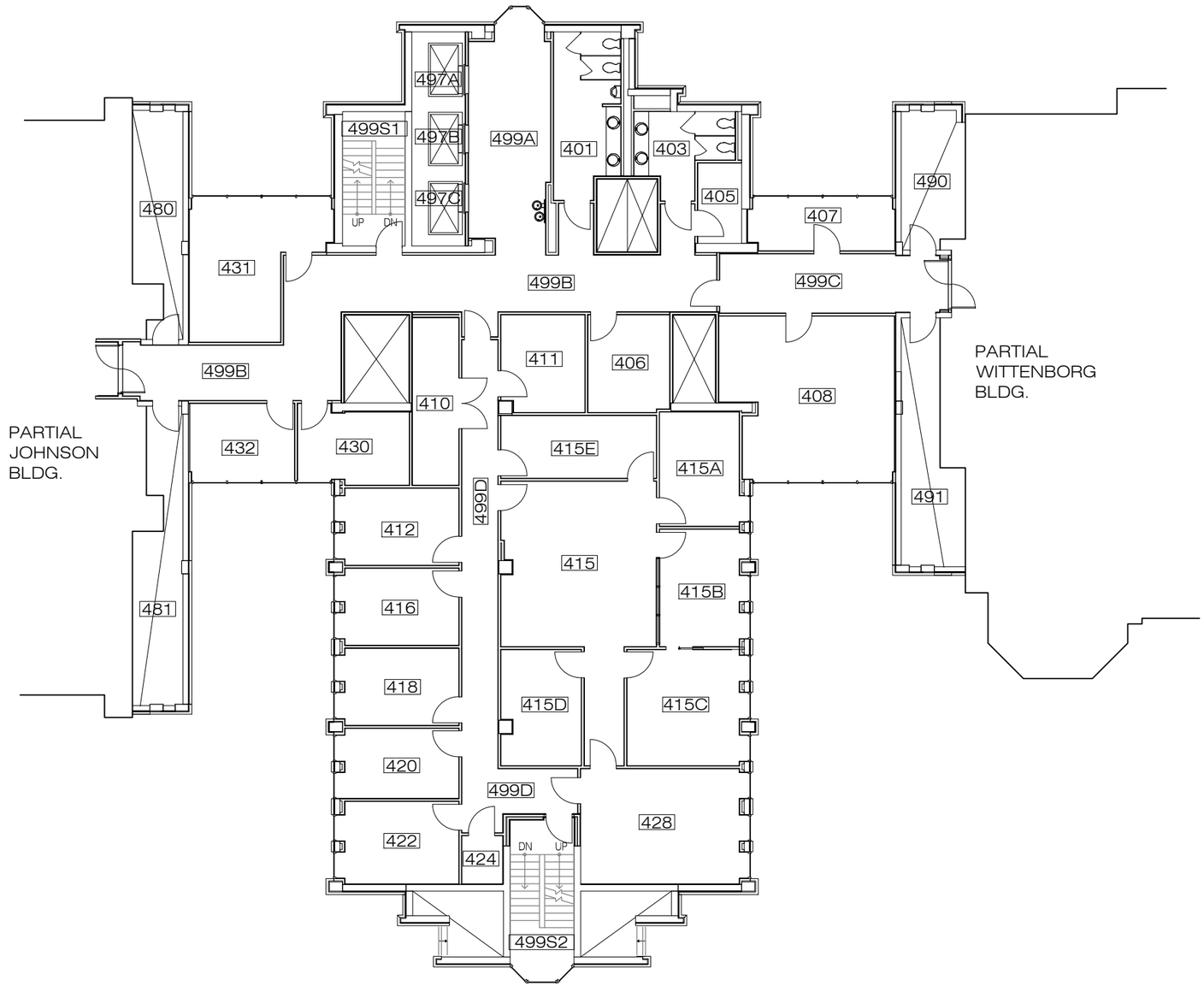

SPACE INFO	
ROOM	AREA
401	166 SF
403	105 SF
405	55 SF
406	122 SF
407	119 SF
408	420 SF
410	120 SF
411	124 SF
412	144 SF
415	473 SF
415A	143 SF
415B	158 SF
415C	214 SF
415D	142 SF
415E	152 SF
416	145 SF
418	145 SF
420	132 SF
422	154 SF
424	31 SF
428	297 SF
430	129 SF

SPACE INFO	
ROOM	AREA
431	250 SF
432	126 SF
480	159 SF
481	199 SF
490	134 SF
491	191 SF
497A	60 SF
497B	60 SF
497C	60 SF
499A	283 SF
499B	670 SF
499C	208 SF
499D	335 SF
499S1	132 SF
499S2	157 SF
4TH FLOOR	6715 SF
GROSS AREA	8093 SF

2194 - LINK BUILDING
FOURTH FLOOR

Database Plan Revised 05/2012

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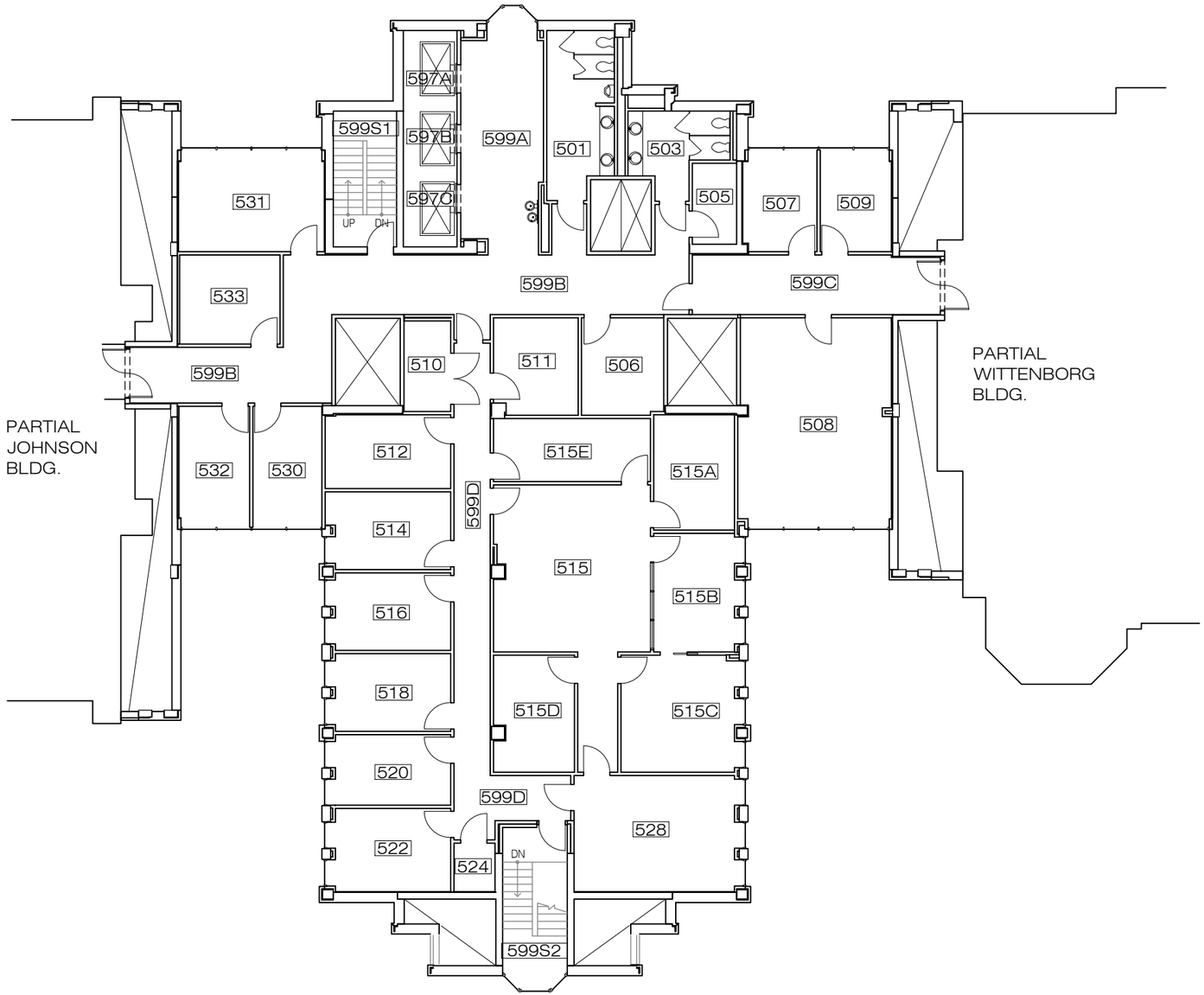
THE UNIVERSITY of TENNESSEE
Health Science Center



SPACE INFO

ROOM	AREA
501	166 SF
503	105 SF
505	55 SF
506	122 SF
507	114 SF
508	486 SF
509	111 SF
510	65 SF
511	124 SF
512	142 SF
514	146 SF
515	473 SF
515A	143 SF
515B	158 SF
515C	214 SF
515D	142 SF
515E	152 SF
516	145 SF
518	145 SF
520	132 SF

SPACE INFO

ROOM	AREA
522	154 SF
524	31 SF
528	297 SF
530	128 SF
531	227 SF
532	131 SF
533	137 SF
597A	60 SF
597B	60 SF
597C	60 SF
599A	282 SF
599B	636 SF
599C	225 SF
599D	334 SF
599S1	132 SF
599S2	157 SF
5TH FLOOR	6393 SF
GROSS AREA	8465 SF

2194 - LINK BUILDING
FIFTH FLOOR

Database Plan Revised 05/2012

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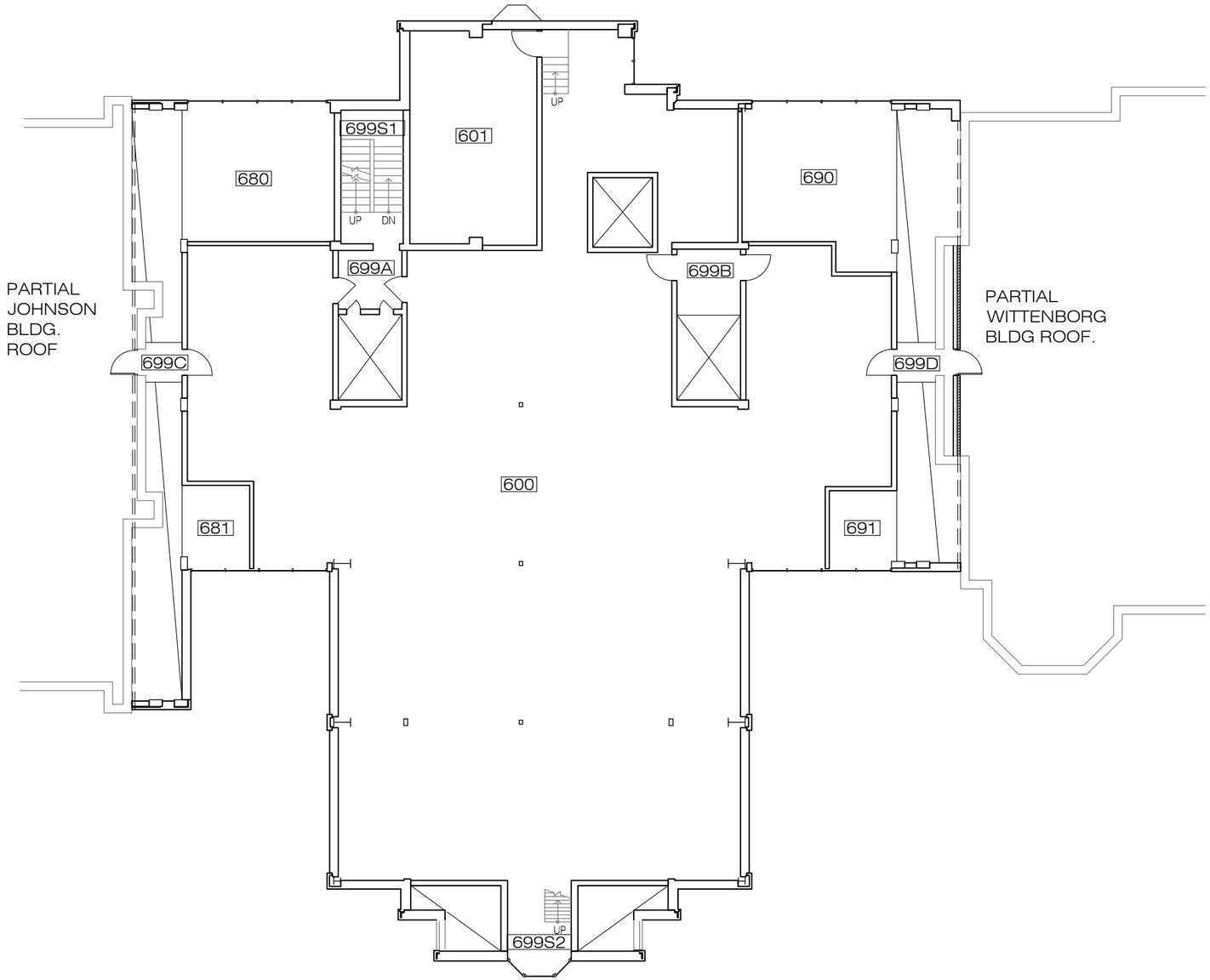
Health Science Center



SPACE INFO

ROOM	AREA
600	5438 SF
601	429 SF
680	333 SF
681	88 SF
690	367 SF
691	83 SF
699A	59 SF
699B	66 SF
699C	23 SF
699D	24 SF
699S1	132 SF
699S2	90 SF
6TH FLR. PENTHSE.	7222 SF
GROSS AREA	9021 SF

2194 - LINK BUILDING
SIXTH FLOOR

Database Plan Revised 05/2012

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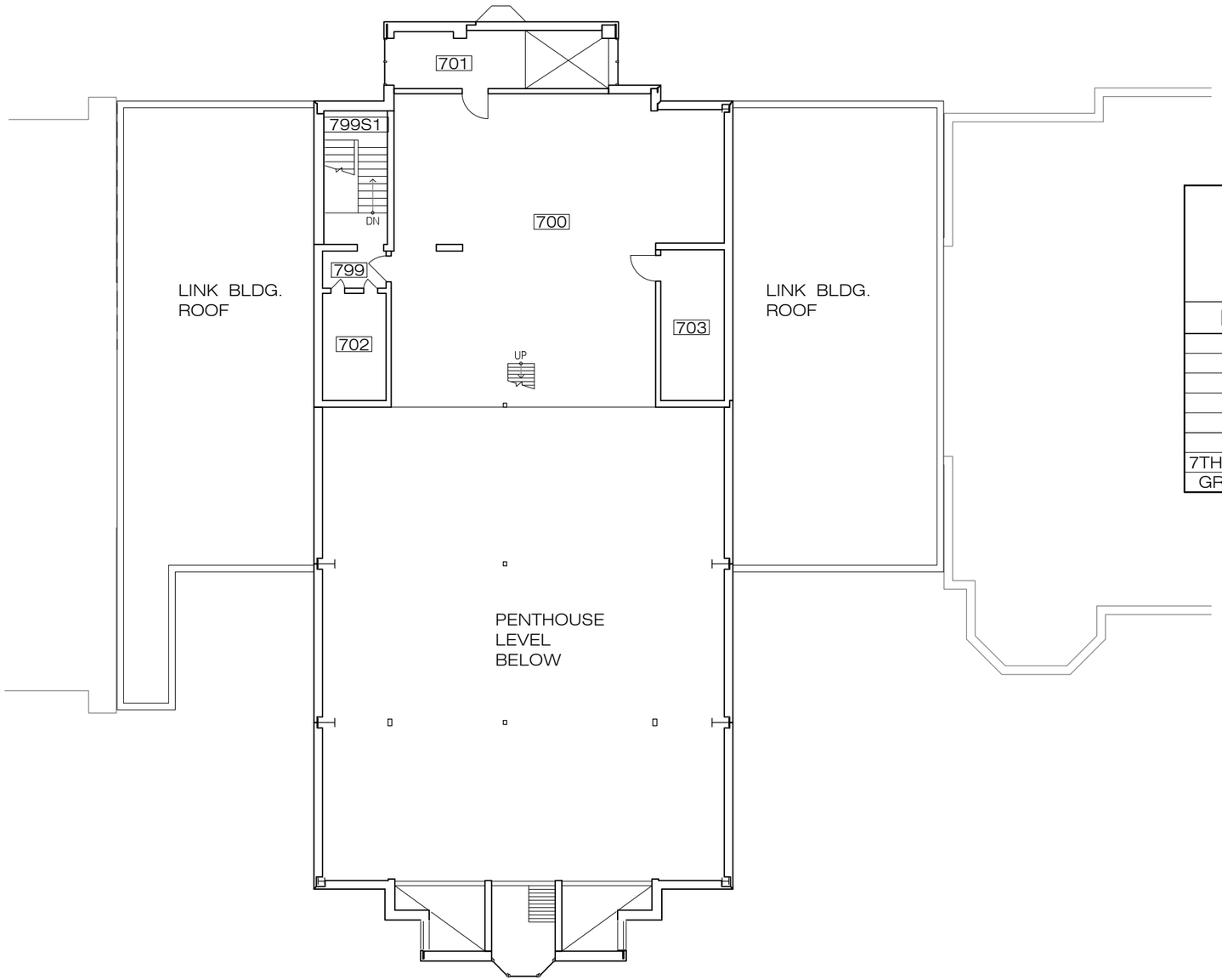

SPACE INFO

ROOM	AREA
700	1452 SF
701	124 SF
702	108 SF
703	152 SF
799	37 SF
799S1	135 SF
7TH FLR. MEZZ.	2008 SF
GROSS AREA	2345 SF

2194 - LINK BUILDING
SEVENTH FLOOR

Database Plan Revised 05/2012

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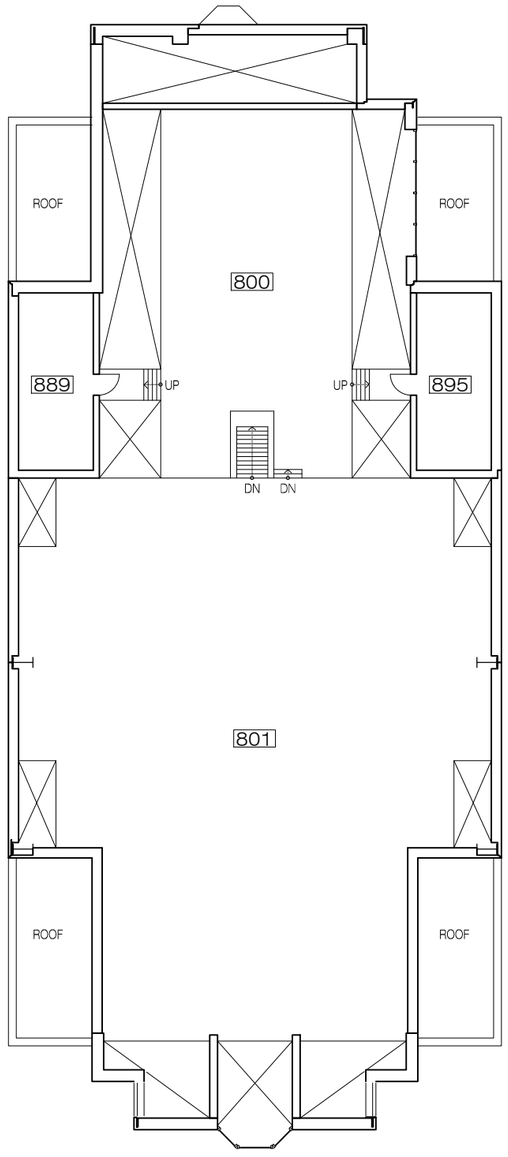
Health Science Center



SPACE INFO

ROOM	AREA
800	819 SF
801	2547 SF
889	152 SF
895	152 SF
8TH FLR. MEZZ.	3670 SF
GROSS AREA	5164 SF

2194 - LINK BUILDING
EIGHTH FLOOR

Database Plan Revised 05/2012

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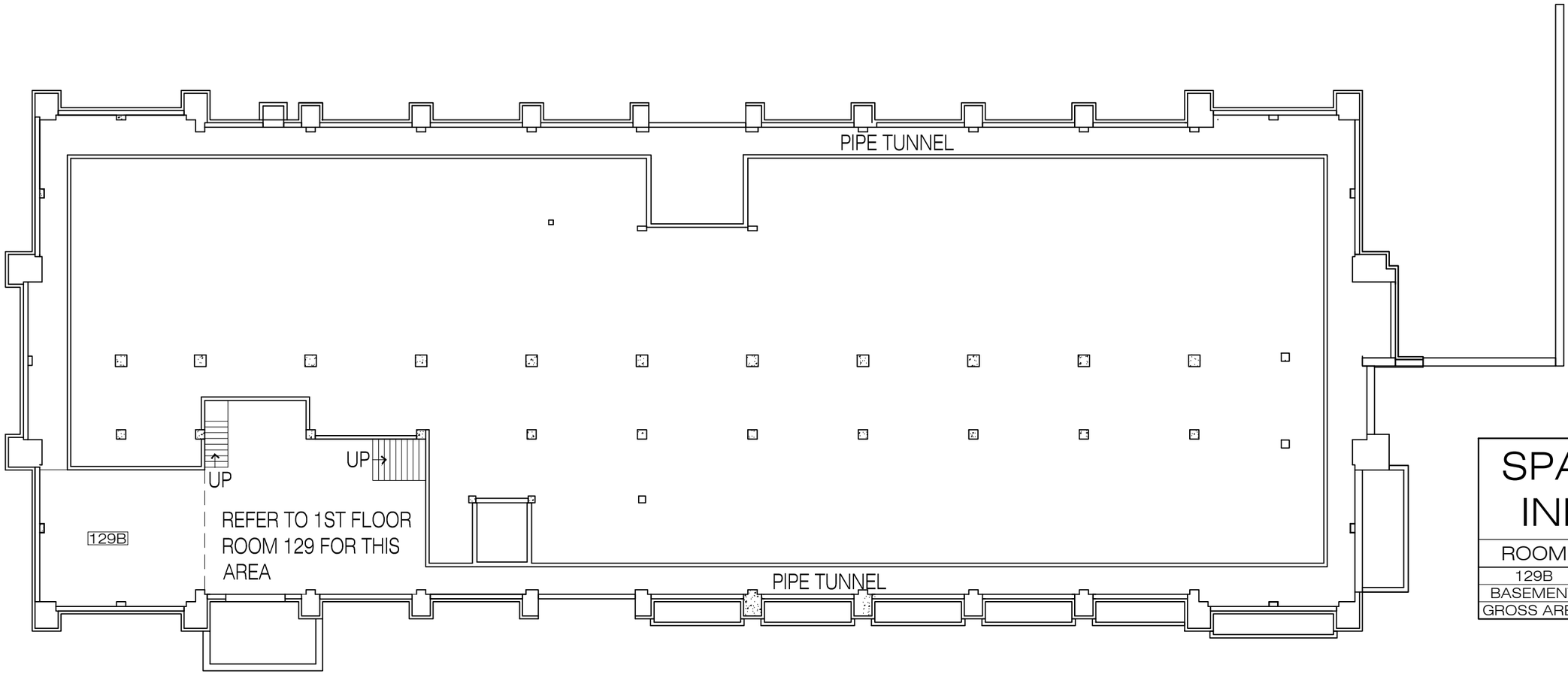

SPACE INFO

ROOM	AREA
129B	466 SF
BASEMENT	466 SF
GROSS AREA	557 SF

2109 - JOHNSON BUILDING
BASEMENT FLOOR

Database Plan Revised 07/2012

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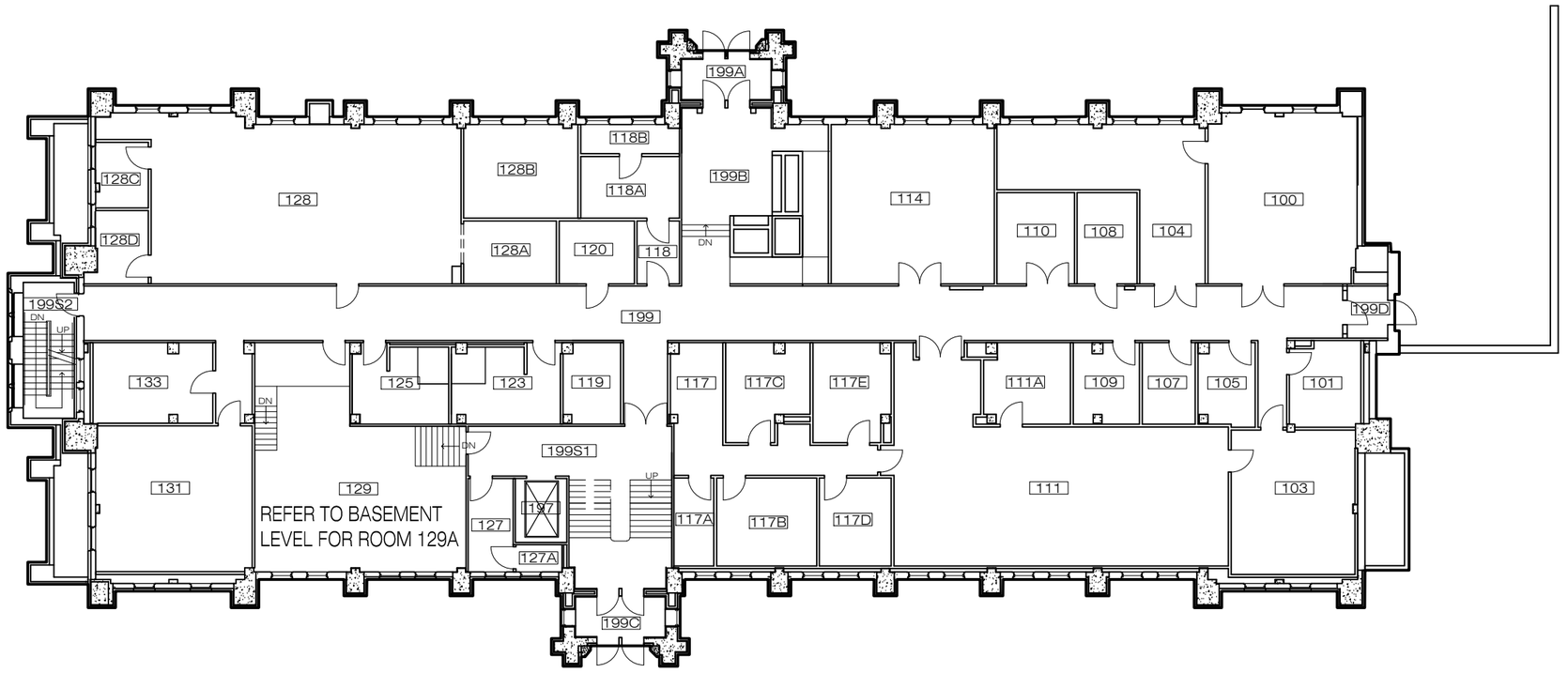
Health Science Center



SPACE INFO	
ROOM	AREA
100	573 SF
101	136 SF
103	407 SF
104	449 SF
105	104 SF
107	99 SF
108	125 SF
109	119 SF
110	161 SF
111	1205 SF
111A	154 SF
114	591 SF
117	272 SF
117A	80 SF
117B	200 SF
117C	167 SF
117D	144 SF
117E	169 SF
118	61 SF
118A	138 SF
118B	66 SF
119	102 SF
120	108 SF

SPACE INFO	
ROOM	AREA
123	189 SF
125	167 SF
127	96 SF
127A	29 SF
128	1174 SF
128A	133 SF
128B	243 SF
128C	78 SF
128D	90 SF
129	879 SF
131	517 SF
133	215 SF
197	75 SF
199	1779 SF
199A	88 SF
199B	547 SF
199C	88 SF
199D	48 SF
199S1	490 SF
199S2	157 SF
1ST FLOOR	12660 SF
GROSS AREA	15100 SF

2109 - JOHNSON BUILDING
FIRST FLOOR

Database Plan Revised 07/2012

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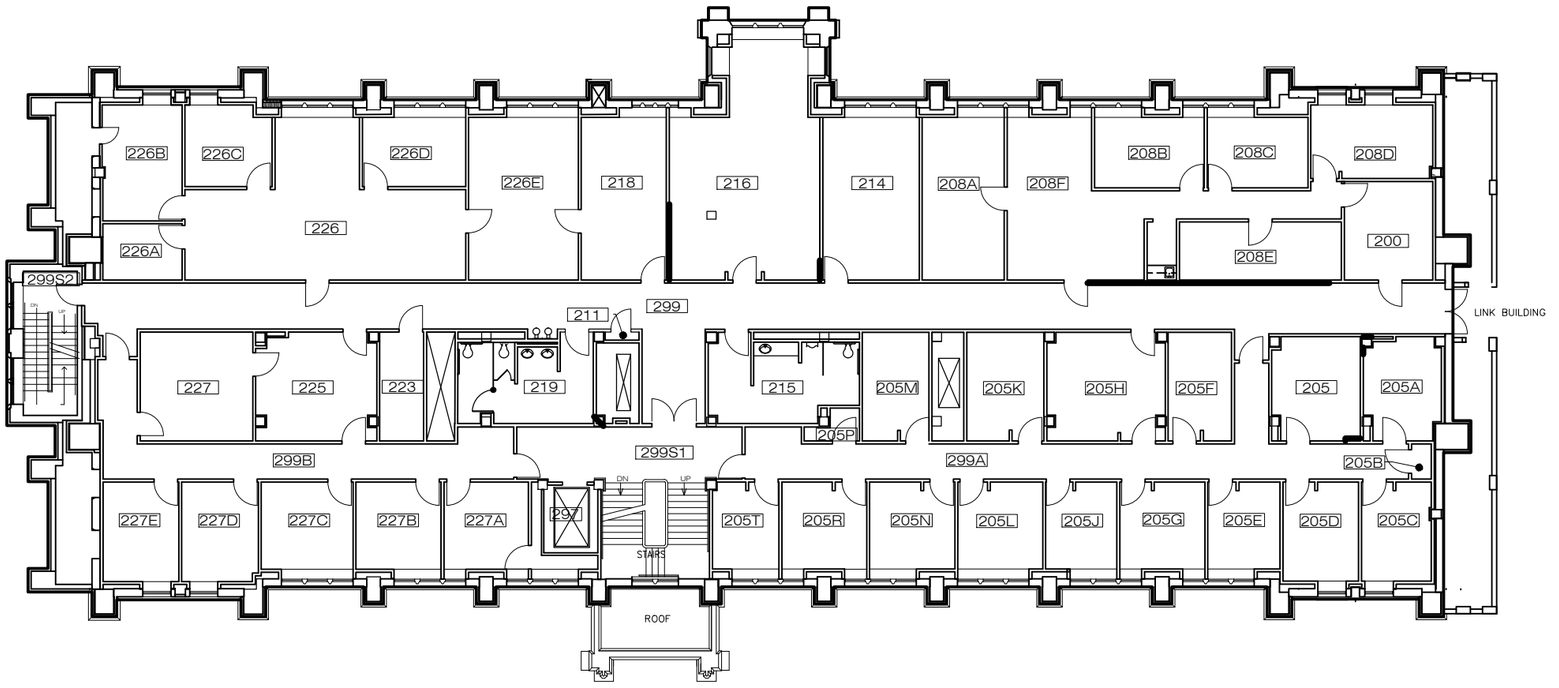
Health Science Center



SPACE INFO	
ROOM	AREA
200	177 SF
205	179 SF
205A	150 SF
205B	14 SF
205C	139 SF
205D	151 SF
205E	126 SF
205F	139 SF
205G	148 SF
205H	250 SF
205J	124 SF
205K	169 SF
205L	148 SF
205M	145 SF
205N	149 SF
205P	27 SF
205R	148 SF
205T	115 SF
208A	270 SF
208B	156 SF
208C	143 SF
208D	180 SF
208E	190 SF
208F	525 SF
211	6 SF
214	316 SF

SPACE INFO	
ROOM	AREA
215	222 SF
216	616 SF
218	279 SF
219	213 SF
223	96 SF
225	253 SF
226	636 SF
226A	90 SF
226C	139 SF
226D	144 SF
226E	360 SF
226B	185 SF
227	248 SF
227A	149 SF
227B	150 SF
227C	161 SF
227D	153 SF
227E	153 SF
297	73 SF
299	1450 SF
299A	540 SF
299B	375 SF
299S1	455 SF
299S2	157 SF
2ND FLOOR	11580 SF
GROSS AREA	14509 SF

2109 - JOHNSON BUILDING
SECOND FLOOR

Database Plan Revised 07/2012

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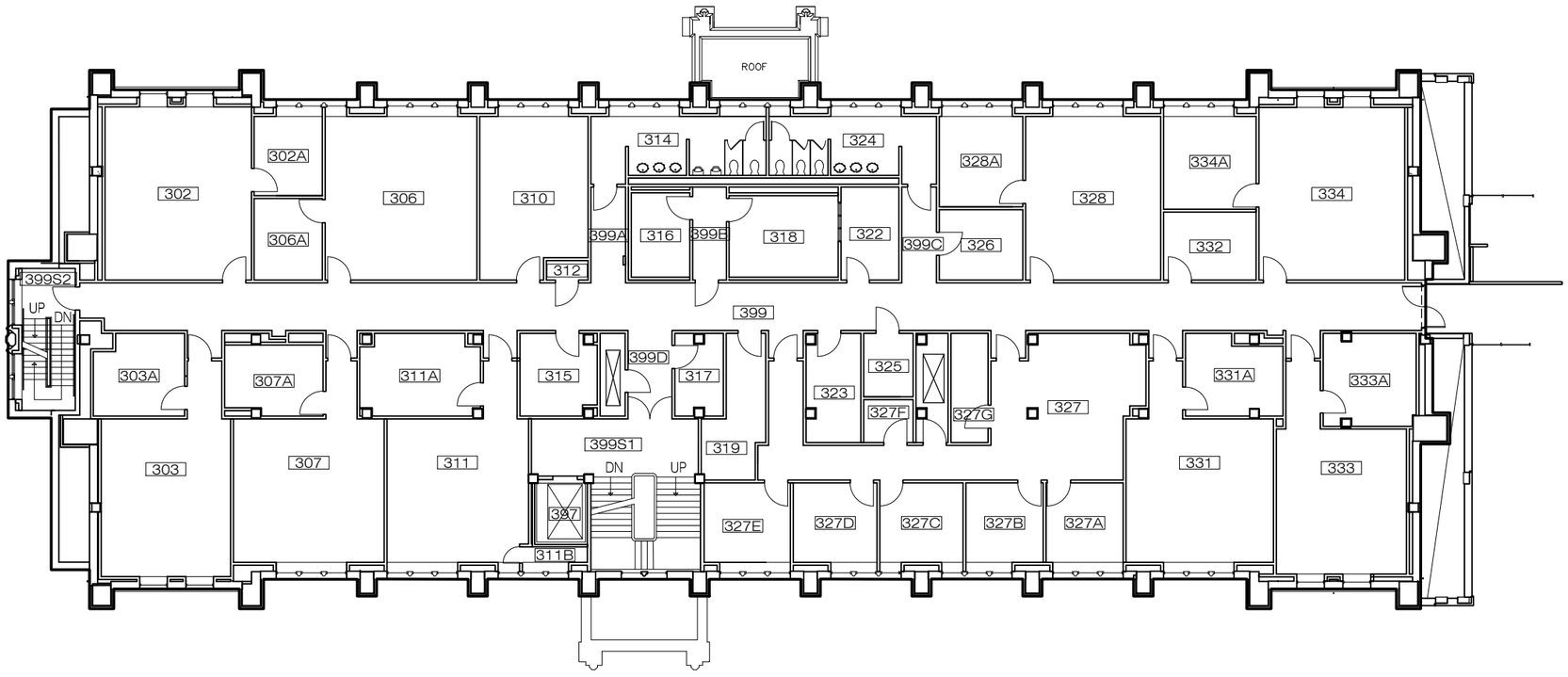

SPACE INFO	
ROOM	AREA
302	528 SF
302A	112 SF
303	466 SF
303A	148 SF
306	517 SF
306A	116 SF
307	488 SF
307A	139 SF
310	347 SF
311	460 SF
311A	196 SF
311B	21 SF
312	17 SF
314	217 SF
315	126 SF
316	103 SF
317	79 SF
318	185 SF
319	144 SF
322	112 SF
323	120 SF
324	208 SF
325	66 SF
326	122 SF
327	642 SF
327A	128 SF

SPACE INFO	
ROOM	AREA
327B	128 SF
327C	138 SF
327D	139 SF
327E	143 SF
327F	44 SF
327G	85 SF
328	460 SF
328A	157 SF
331	482 SF
331A	153 SF
332	131 SF
333	442 SF
333A	175 SF
334	524 SF
334A	178 SF
397	67 SF
399	1463 SF
399A	69 SF
399B	65 SF
399C	69 SF
399D	81 SF
399S1	410 SF
399S2	157 SF
3RD FLOOR	11568 SF
GROSS AREA	14185 SF

2109 - JOHNSON BUILDING
THIRD FLOOR

Database Plan Revised 07/2012

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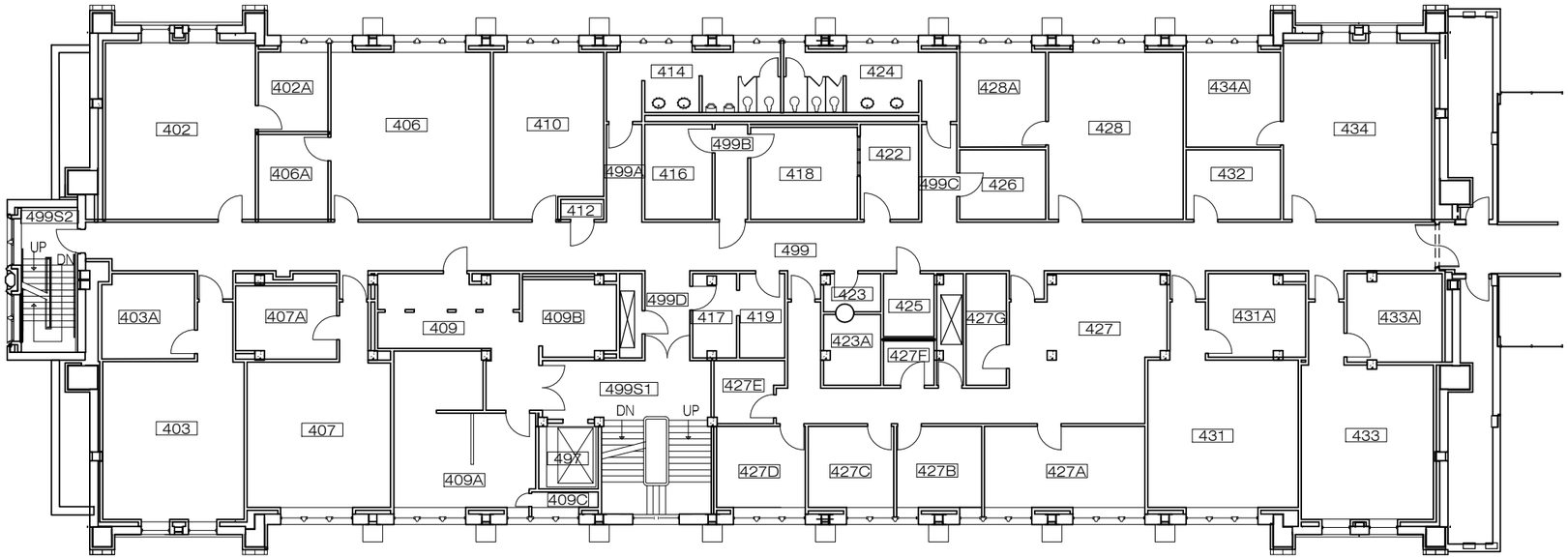
Health Science Center



SPACE INFO	
ROOM	AREA
402	528 SF
402A	110 SF
403	488 SF
403A	156 SF
406	533 SF
406A	118 SF
407	451 SF
407A	142 SF
409	205 SF
409A	369 SF
409B	203 SF
409C	20 SF
410	347 SF
412	17 SF
414	212 SF
416	128 SF
417	71 SF
418	196 SF
419	76 SF
422	111 SF
423	42 SF
423A	79 SF
424	211 SF
425	64 SF
426	119 SF
427	639 SF

SPACE INFO	
ROOM	AREA
427A	260 SF
427B	138 SF
427C	139 SF
427D	144 SF
427E	80 SF
427F	46 SF
427G	90 SF
428	450 SF
428A	162 SF
431	485 SF
431A	154 SF
432	131 SF
433	451 SF
433A	167 SF
434	522 SF
434A	178 SF
497	77 SF
499	1420 SF
499A	69 SF
499B	62 SF
499C	69 SF
499D	78 SF
499S1	403 SF
499S2	162 SF
4TH FLOOR	11572 SF
GROSS AREA	14023 SF

2109 - JOHNSON BUILDING
FOURTH FLOOR

Database Plan Revised 07/2012

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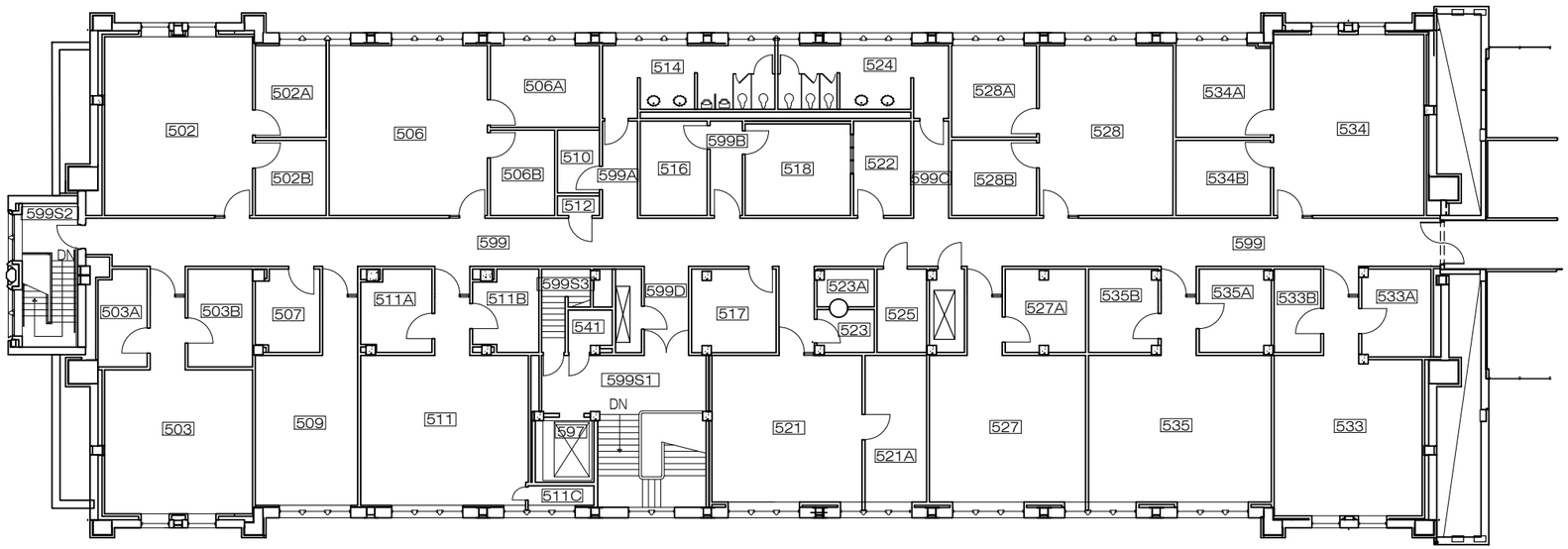
Health Science Center



SPACE INFO	
ROOM	AREA
502	537 SF
502A	132 SF
502B	108 SF
503	485 SF
503A	95 SF
503B	128 SF
506	547 SF
506A	182 SF
506B	112 SF
507	104 SF
509	354 SF
510	54 SF
511	552 SF
511A	112 SF
511B	102 SF
511C	26 SF
512	17 SF
514	226 SF
516	128 SF
517	140 SF
518	196 SF
521	448 SF
521A	183 SF
522	110 SF
523	49 SF
523A	42 SF
524	224 SF

SPACE INFO	
ROOM	AREA
525	84 SF
527	507 SF
527A	133 SF
528	462 SF
528A	158 SF
528B	130 SF
533	519 SF
533A	122 SF
533B	79 SF
534	553 SF
534A	176 SF
534B	145 SF
535	587 SF
535A	120 SF
535B	116 SF
541	35 SF
597	77 SF
599	1495 SF
599A	69 SF
599B	62 SF
599C	69 SF
599D	78 SF
599S1	400 SF
599S2	163 SF
599S3	59 SF
5TH FLOOR	11792 SF
GROSS AREA	14022 SF

2109 - JOHNSON BUILDING
FIFTH FLOOR

Database Plan Revised 07/2012

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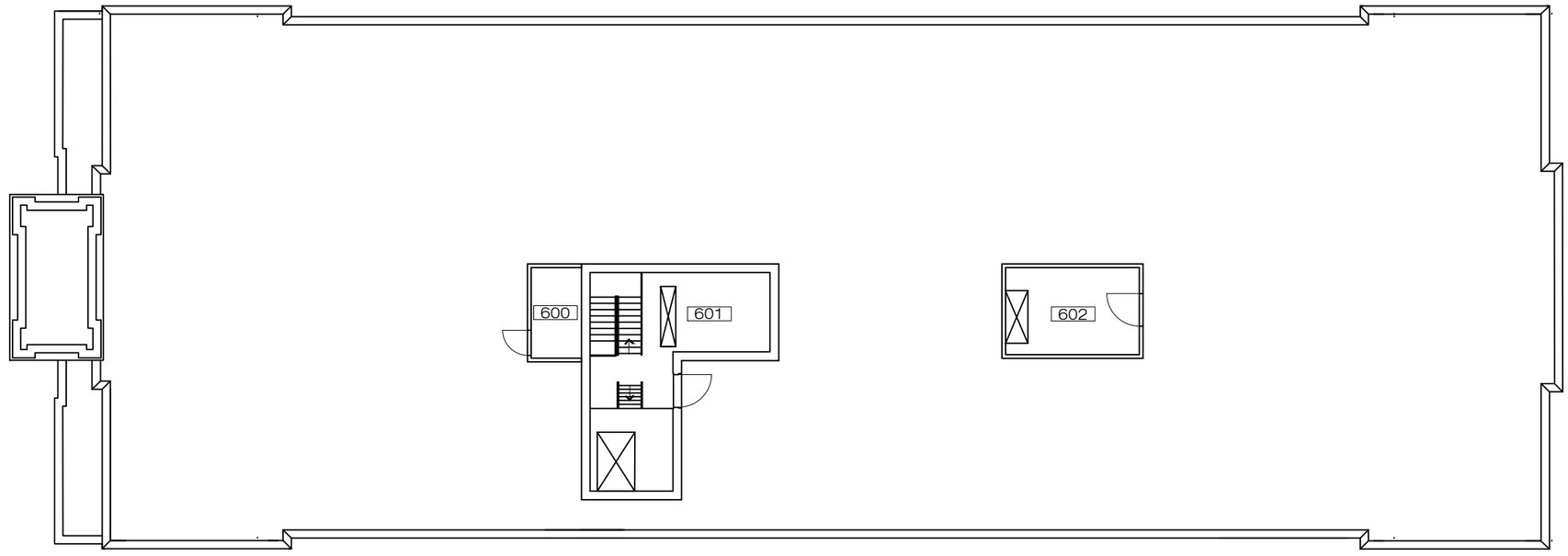
Health Science Center



SPACE INFO

ROOM	AREA
600	80 SF
601	455 SF
602	205 SF
PENTHOUSE	739 SF
XGROSS AREA	909 SF

2109 - JOHNSON BUILDING
SIXTH FLOOR

Database Plan Revised 07/2012

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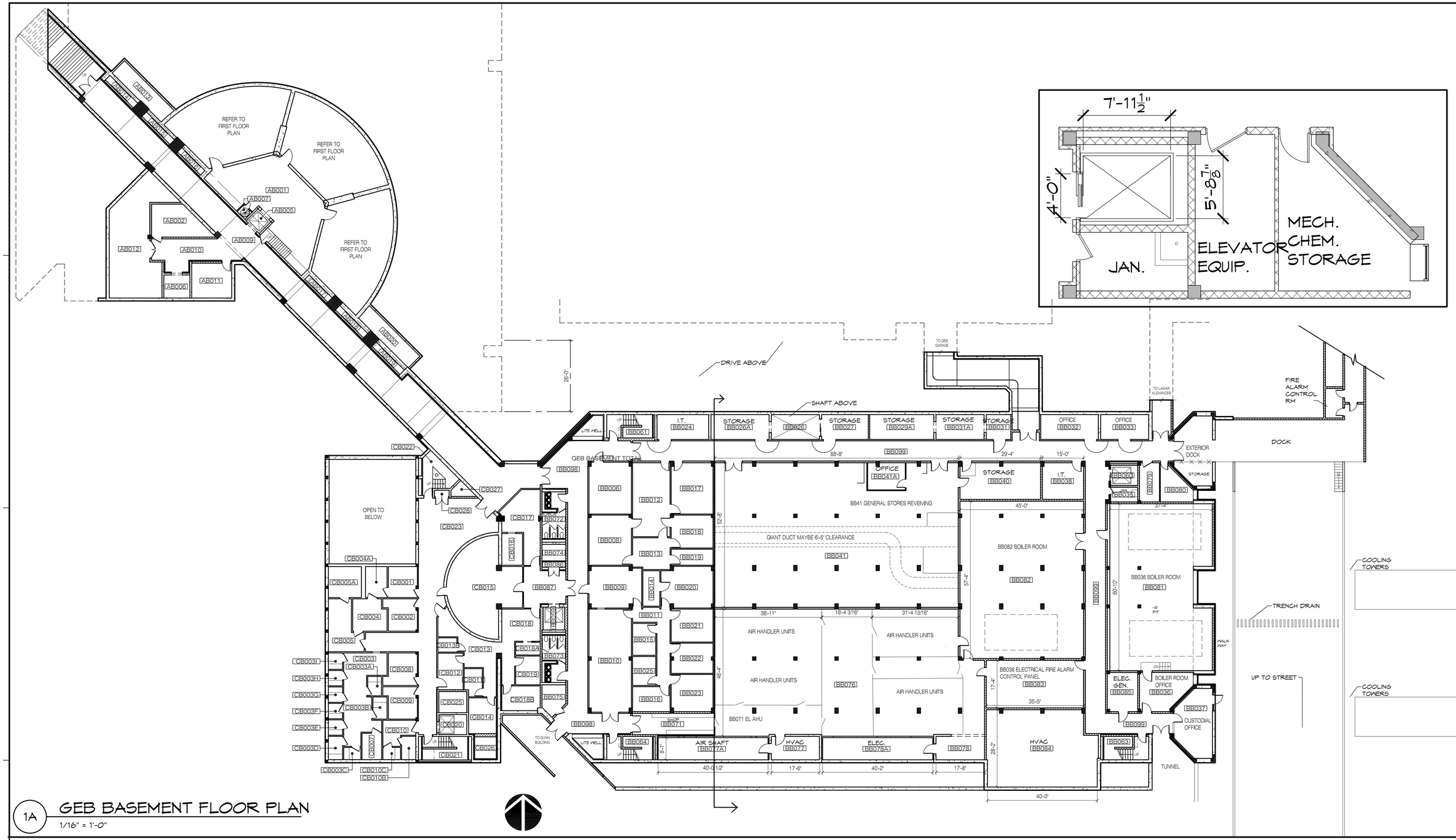
Health Science Center



1A GEB BASEMENT FLOOR PLAN

1/16" = 1'-0"

SELF+TUCKER ARCHITECTS
505 Tennessee Street, Suite 101 Memphis, Tennessee 38103 Telephone: 901.261.1505

CONSULTANT

SEAL

PROJECT/CLIENT

UTHSC GROSS ANATOMY LAB RENOVATION
540/013-02-2017

MEMPHIS, TN

ISSUES AND REVISIONS

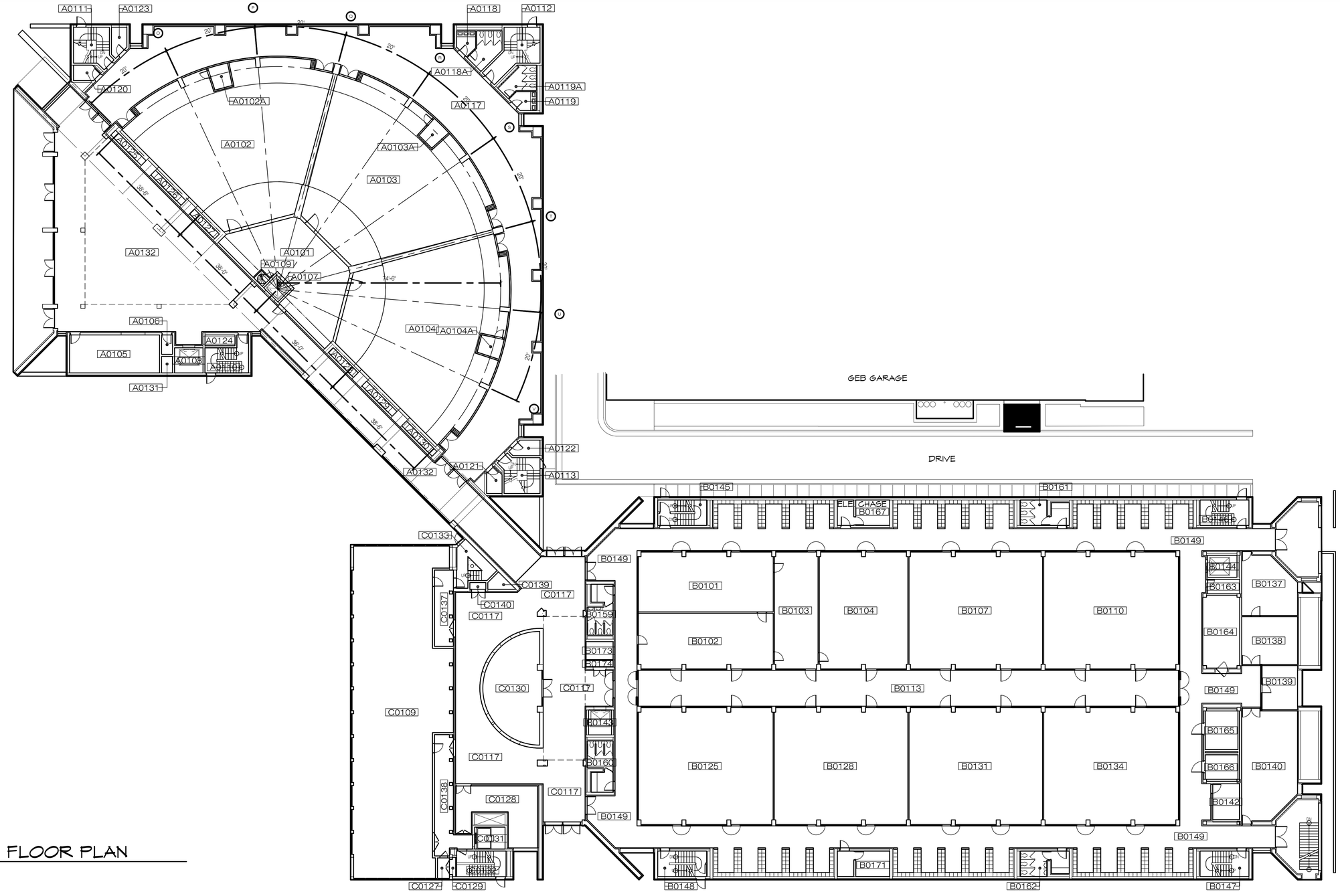
PROJECT NUMBER	1730
FILE NAME	UTHSC.dwg
DRAWN BY	VMR
CHECKED BY	JM
APPROVED	JT

SHEET NAME

GENERAL EDUCATION BUILDING BASEMENT

SHEET NUMBER

A-110



1A GEB 1ST FLOOR PLAN

1/16" = 1'-0"

SELF+TUCKER
ARCHITECTS
505 Tennessee Street, Suite 101 Memphis, Tennessee 38103 Telephone: 901.261.1505

CONSULTANT

SEAL

PROJECT/CLIENT

UTHSC GROSS ANATOMY LAB RENOVATION
540/013-02-2017

MEMPHIS, TN

ISSUES AND REVISIONS

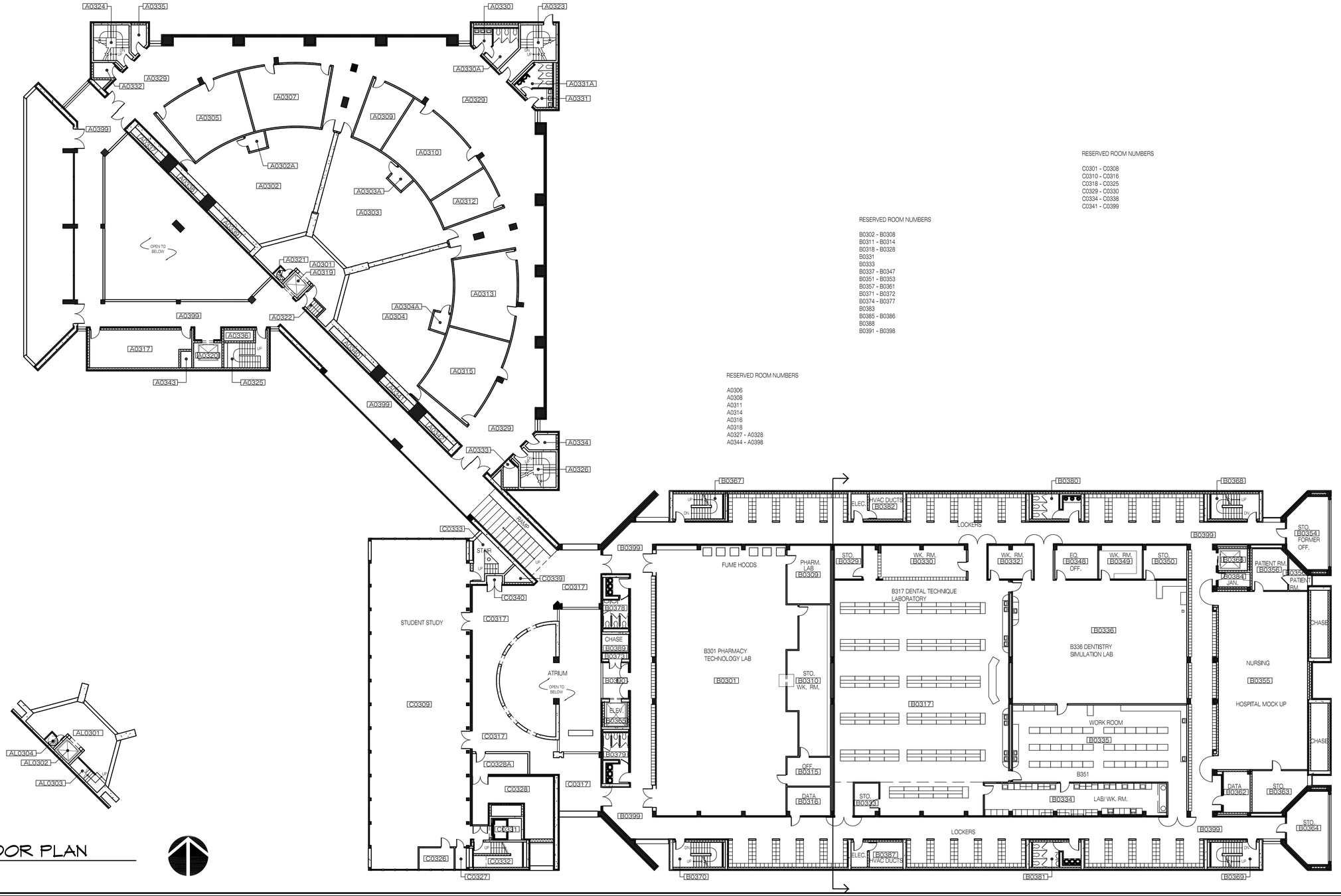
PROJECT NUMBER	1730
FILE NAME	UTHSC.dwg
DRAWN BY	VMR
CHECKED BY	JM
APPROVED	JT

SHEET NAME

GENERAL EDUCATION BUILDING 1ST FLOOR

SHEET NUMBER

A-112



RESERVED ROOM NUMBERS

C0301 - C0308
C0310 - C0316
C0318 - C0325
C0329 - C0330
C0334 - C0338
C0341 - C0399

RESERVED ROOM NUMBERS

B0302 - B0308
B0311 - B0314
B0318 - B0328
B0331
B0333
B0337 - B0347
B0351 - B0353
B0357 - B0361
B0371 - B0372
B0374 - B0377
B0383
B0385 - B0386
B0388
B0391 - B0398

RESERVED ROOM NUMBERS

A0306
A0308
A0311
A0314
A0316
A0318
A0327 - A0328
A0344 - A0398

1A GEB 3RD FLOOR PLAN

1/16" = 1'-0"

SELF+TUCKER ARCHITECTS
505 Tennessee Street, Suite 101 Memphis, Tennessee 38103 Telephone: 901.261.1505

CONSULTANT

SEAL

PROJECT/CLIENT

UTHSC GROSS ANATOMY LAB RENOVATION
540/013-02-2017

MEMPHIS, TN

ISSUES AND REVISIONS

PROJECT NUMBER	1730
FILE NAME	UTHSC.dwg
DRAWN BY	VMR
CHECKED BY	JM
APPROVED	JT

SHEET NAME

GENERAL EDUCATION BUILDING 3RD FLOOR

SHEET NUMBER

A-111

C. EQUIPMENT QUOTE

Summary for HOK
Project:
Quotation: QTN54861.18

Mopec Representative
Bill Stacy
bills@bsilab.com
866-674-7220 EXT 103

Qty	Product No.	Description	Price	Discount	Disc Amt	Unit Price	Ext Price
60	HB300CUST	CUSTOM DOWN DRAFT DISSECTING TABLE TILT-ELEVATING	$8,072.00	11%	$887.92	$7,184.08	**$431,044.80**

PREVENTIVE MAINTENANCE FOR YOUR MOPEC EQUIPMENT

Mopec is pleased to introduce our exclusive Preventive Maintenance Partner, Scimedico. Preventive Maintenance for your Mopec equipment addresses:

* Staff safety
* Lab hygiene and specimen control
* Ongoing equipment maintenance needs
* Maximization of warranty coverage
* Work place quality and cleanliness

A Preventive Maintenance Quote will be sent to you from Scimedico referencing your Mopec equipment quote number. Your Mopec Sales Representative will follow up with you to discuss this exciting and important service. For more information, visit:

CLICK HERE FOR MORE INFORMATION ON SCIMEDICO PREVENTATIVE MAINTENANCE

All prices are in currency USD ($)

Details of Quotation: QTN54861.18

Date: Monday, March 12, 2018

Mopec Representative

Bill Stacy
bills@bsilab.com
866-674-7220 EXT 103

Quotation Prepared For

AMI SHAH
HOK
191 Peachtree Street NE, Suite 2250
Atlanta, GA 30303 USA
Phone: (678) 954-8978
Fax:
Email: ami.shah@hok.com

Customer Facility

Randall Nelson
University of Tennessee-Memphis
855 Monroe Avenue
Memphis, TN 38163 USA
Phone: (901)448-5979
Fax: (901) 448-5222
Email:

Qty	Product No.	Description	Price	Discount	Disc Amt	Unit Price	Ext Price
60	**HB300CUST**	**CUSTOM DOWN DRAFT DISSECTING TABLE TILT-ELEVATING** * Dimensions: 30"W x 86"L x 36"H Lowered height 30 1/2" * Fully elevated height 44 1/2" * Table top is 86 " L x 30" W fabricated of 14 gauge type 304 stainless steel with a #4 satin finish. * Recessed area is 79" x 24" * The cart elevates and/or tilts at both ends. * Dual side mounted foot controls. * Dual locking levers lock all the wheels simultaneously from either end. * Table top can be lowered in height to 30-1/2" and fully elevated height to 44-1/2". * Undercarriage subframe is fabricated of 12 gauge type 304 stainless steel. * Perforated Grid Plates: Fabricated of 14 gauge type 304 stainless steel with a #4 satin finish. * Grids are perforated with 1/2" diameter holes on 1" centers. * 8" diameter casters * Weight capacity 700 pounds ********** MODIFICATION: * Includes hinged cover similar to HB400 **********	$8,072.00	11%	$887.92	$7,184.08	**$431,044.80**

Qty	Product No.	Description	Price	Discount	Disc Amt	Unit Price	Ext Price

PREVENTIVE MAINTENANCE FOR YOUR MOPEC EQUIPMENT

Mopec is pleased to introduce our exclusive Preventive Maintenance Partner, Scimedico. Preventive Maintenance for your Mopec equipment addresses:

* Staff safety
* Lab hygiene and specimen control
* Ongoing equipment maintenance needs
* Maximization of warranty coverage
* Work place quality and cleanliness

A Preventive Maintenance Quote will be sent to you from Scimedico referencing your Mopec equipment quote number. Your Mopec Sales Representative will follow up with you to discuss this exciting and important service. For more information, visit:

CLICK HERE FOR MORE INFORMATION ON SCIMEDICO PREVENTATIVE MAINTENANCE

All prices are in currency USD ($)

All customers may be subject to applicable sales tax unless certificate of tax exemption is provided.

Quotation & Discount Valid for 90 Days Unless Superseded By Another Quotation.
Terms: Net 30 Days Upon Credit Approval
Transportation: FOB Oak Park, MI
Freight: Pre-Paid and Added to Invoice
Warranty: One-Year
Delivery: INSTRUMENTS
7-10 Days After Receipt of Purchase Order.
STANDARD EQUIPMENT
Our products will ship 75-90 days after receipt of order.
CUSTOM/MODIFIED EQUIPMENT
Our products will ship 90-120 days after receipt of signed approval drawings.

Price as quoted **DOES NOT INCLUDE freight costs**, unless a freight line item is included in the quote. Freight will be pre-paid and added to the invoice after product shipment

Price as quoted DOES NOT INCLUDE installation. Please advise your sales representative or Mopec estimator if you would like to receive pricing for equipment installation.

Price as quoted DOES NOT INCLUDE any applicable sales and use taxes, which will be in addition to price quoted unless customer provides certificate of sales tax exemption.

Equipment to be manufactured per the specifications provided in the proposal presented by Mopec, if approval drawings have been completed these shall govern.

Please note that any request for a change in equipment design, or services to be provided, may result in additional charges. These changes and the monetary value associated with them (if any) will be executed through Mopec\'s Change Directive Form.

PLEASE REFERENCE QUOTE NUMBER WHEN PLACING YOUR ORDER.

Thank You,
Mopec

Nick Milanovic
CUSTOM MODIFIED ESTIMATING
E-mail: nmilanovic@mopec.com
(800) 362-8491 X187

ALL QUOTATIONS ARE SUBJECT TO MOPEC TERMS AND CONDITIONS AS PER ATTACHED

PREVENTIVE MAINTENANCE FOR YOUR MOPEC EQUIPMENT

Mopec is pleased to introduce our exclusive Preventive Maintenance Partner, Scimedico.

Preventive Maintenance for your Mopec equipment addresses:

* Staff safety
* Lab hygiene and specimen control
* Ongoing equipment maintenance needs
* Maximization of warranty coverage
* Work place quality and cleanliness

A Preventive Maintenance Quote will be sent to you from Scimedico referencing your Mopec equipment quote number. Your Mopec Sales Representative will follow up with you to discuss this exciting and important service.

For more information, visit: http://www.scimedico.com/pm

D. EXISTING IMAGES

1. Wittenborg Building
2. Link Building
3. Johnson Building
4. General Education Building (GEB)

1. WITTENBORG BUILDING

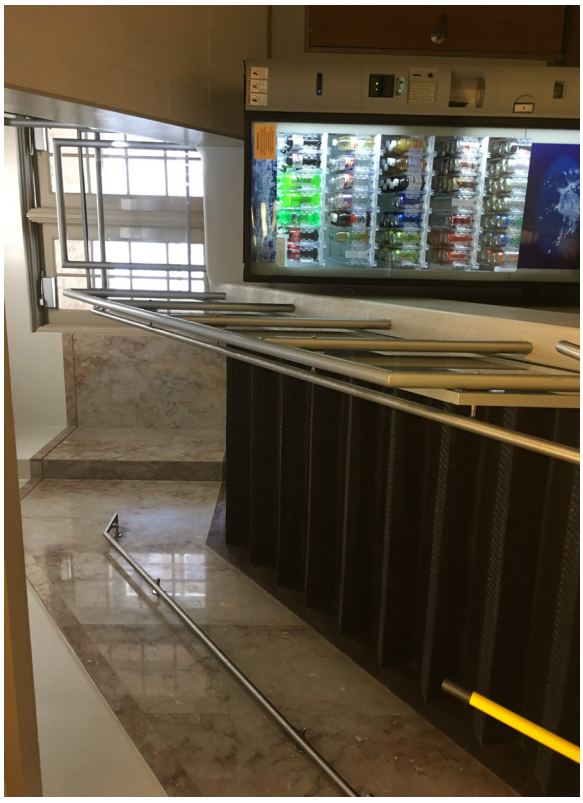
1. WITTENBORG BUILDING


EXIT

2. LINK BUILDING

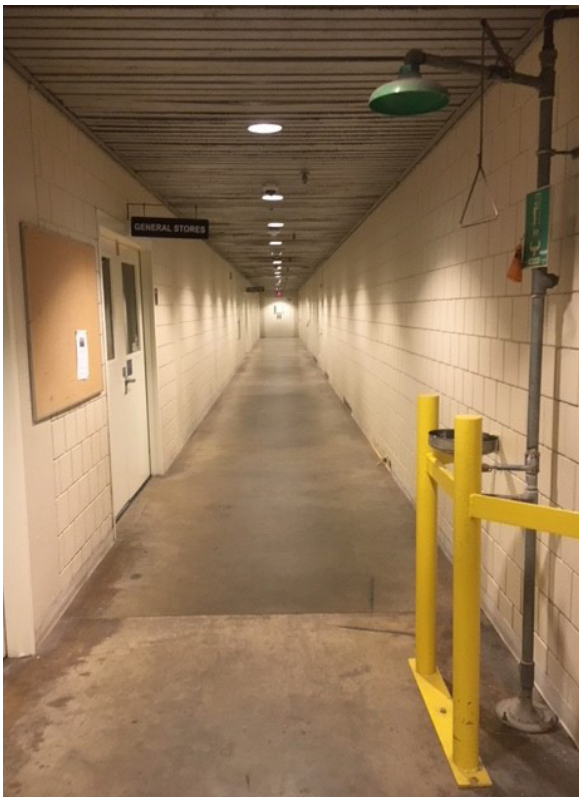

FRAGILE

3. JOHNSON BUILDING




COLD WATER

4. GENERAL EDUCATION BUILDING


GENERAL STORES