

# PROGRAMMING STUDY

SBC #540/000-01-2019 SEPTEMBER 27, 2022







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### **Overview**

### **Vision and Intent of Study**

### **EXECUTIVE SUMMARY**

HED (Harley Ellis Devereaux) was tasked with the programming and planning for the renovation of an existing building on campus, the Presidential Court, for the University of Tennessee Knoxville (UTK). The original parameters (as defined by the UT System) were as follows:

- Renovation and abatement of the existing building with an estimated size of 77,000 square feet.
- Programming and planning of the surrounding site to accommodate all potential utilities, hardscape, green-scape and other logistical requirements.
- Programming and planning of the existing courtyard to incorporate accessibility, improved amenities and connectivity between Presidential Court and adjacent buildings.
- Study of new programmatic functions on all three levels of the building.
- Replacement and upgrade of all building systems and selected renovation of exterior elements.
- The original expected budget was as follows:
  - Presidential Court \$30,000,000

The project team has approached the design with the following key fundamentals in mind.

### **Program Flexibility**

The programmatic needs of an student life building are constantly changing. Flexibility is a key factor in the development of this program. Specifically, the 2nd level of the building proposes a series of movable partitions to accommodate various levels of activities in different areas. This flexibility, coupled with open spaces for collaboration, provides students and staff an opportunity to foster a sense of community and fraternity.

### Circulation

The circulation of the existing building and adjacent courtyard is fragmented, non-accessible and confusing. The existing courtyard has a series of steps and changes in elevation that present challenges for students to navigate, on a macro scale, from one point of the campus to another. Similarly, the ground floor has two distinct floor levels. One of the key priorities of this programming study was to create a fully accessible building with well-defined circulation, which will result in a cohesive student experience of the proposed program and courtyard spaces.

### **Balancing Cost**

HED coordinated with a cost consultant (CCS) to develop a budget strategy with itemized categories for UTK cost exercises. This strategy is represented in this document and may be referenced as needed.

### **Existing Conditions**

HED and its consultants performed a preliminary survey of the existing building conditions to inform program. We recommend that a detailed assessment of the building be performed to comprehensively understand the existing conditions prior to initiating design. This assessment should include a survey of Asbestos Containing Materials (ACM).

### **Site Visit & Facilities Needs Summary**

The following summary reflects important scope discussed with the program advisory committee and several facilities members:

### **Basement**

- Consolidate restrooms, add building storage
- All coolers to be on emergency generator
- Grease usage to be significantly less, to be reduced from 3 to 1
- Existing compactor at loading area to remain

### **Ground Level**

- Electrical and IDF room needed
- Power/Data for Shipping Lockers area to be under the floor
- Existing lockers to be relocated during construction

### 2nd Level

- Concerns of noise coming from the new HVAC roof units
- Penthouse size dependent on the new equipment
- Structural implications of work on the roof level

### Roof

Concern about water ponding

### Courtyard

- Increased courtyard to be closer to Reese Hall
- Add bike parking structure
- Power/Data needed at outdoor locations
- Low maintenance plants. Turf not allowed
- Keep as many trees as possible

### Suggested program:

- Hammock stations
- Swings
- Stadium seating, amphitheater with power for events
- Covered space for warm weather

### Series of "rooms"

- Public
- Semi-Private
- Intimate Spaces

Basement Level | Floor Plan

### The basement level consists of MEP (Mechanical, Electrical, Plumbing) support spaces, building storage and food storage. Underutilized areas include large restrooms with locker rooms, a baking kitchen and private offices. Building maintenance is to remain at this level. There is a service elevator and an egress stair that provide access from the basement level to the roof. LOADING DOCK **OFFICE** ZONE MAINTENANCE **BAKERY &** STORAGE MECHANICAL OFFICE ROOM OFFICE . COOLER COOLER COOLER COOLER COOLER STORAGE **CORRIDOR** WOMENS O **MENS FENCED AREA** STORAGE **FREEZER** COOLER ELECTRICAL ROOM STORAGE STORAGE

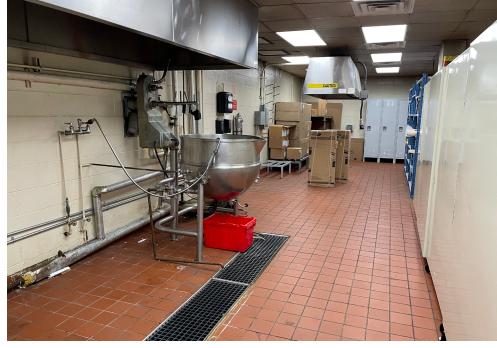
Summary



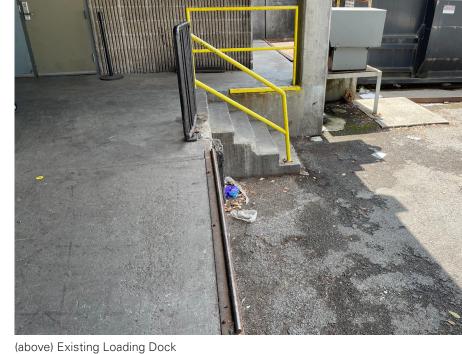
## **Basement Level |** Photos



(above) Existing Bakery and Storage; view towards Loading Dock.



(above) Existing Bakery and Storage; view of existing equipment.

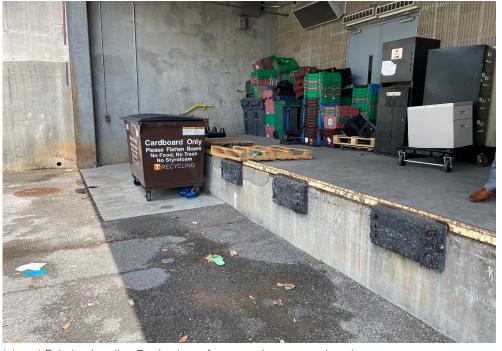




(above) Existing Bakery and Storage; view of existing equipment.



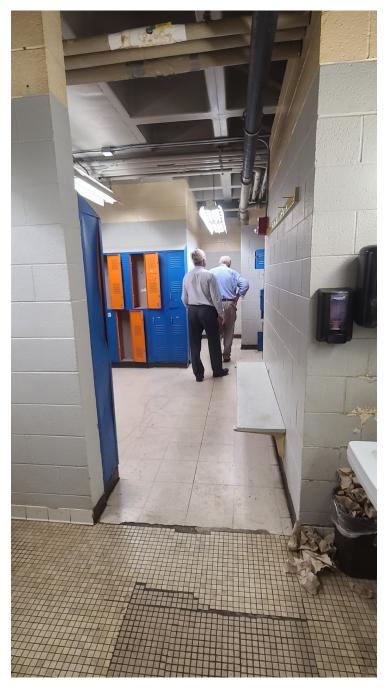
(above) Existing Bakery and Storage; view of existing equipment.

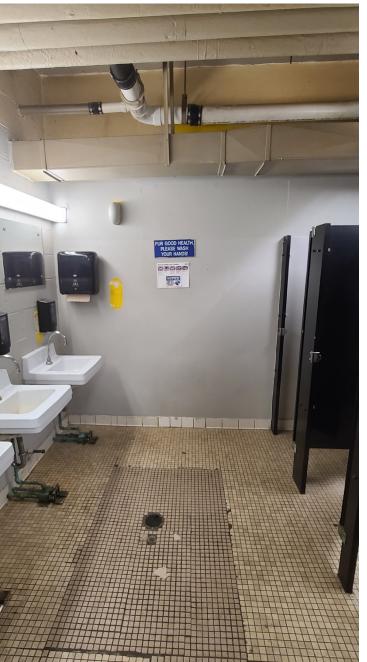


(above) Existing Loading Dock; view of proposed new ramp location for Food Service Robots.

## Basement Level | Photos









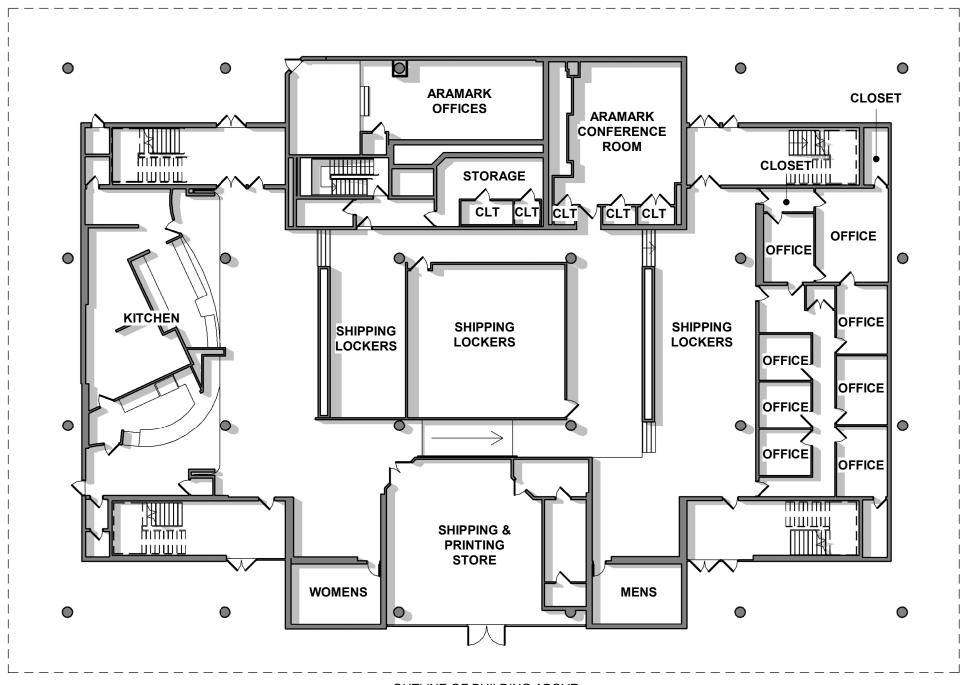
(above and right) Existing Locker Room

(above) Existing Restrooms

(above) Existing Zone Maintenance



**Ground Level |** Floor Plan

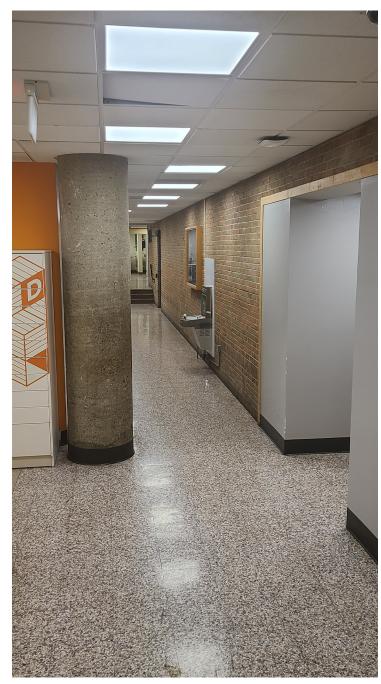


**OUTLINE OF BUILDING ABOVE** 

### Summary

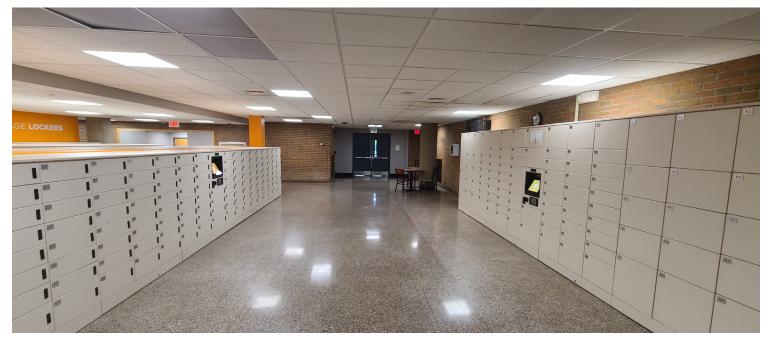
The existing ground floor has three primary areas: food service with kitchen, shipping lockers and a series of private offices and a conference room for Aramark. The shipping and printing store is not in the scope of the project. There are four entrances and four egress stairs connecting up to the second level.

## **Ground Level |** Photos



(above and right) Existing Circulation around Shipping Lockers; views shows existing sunken portion of slab.





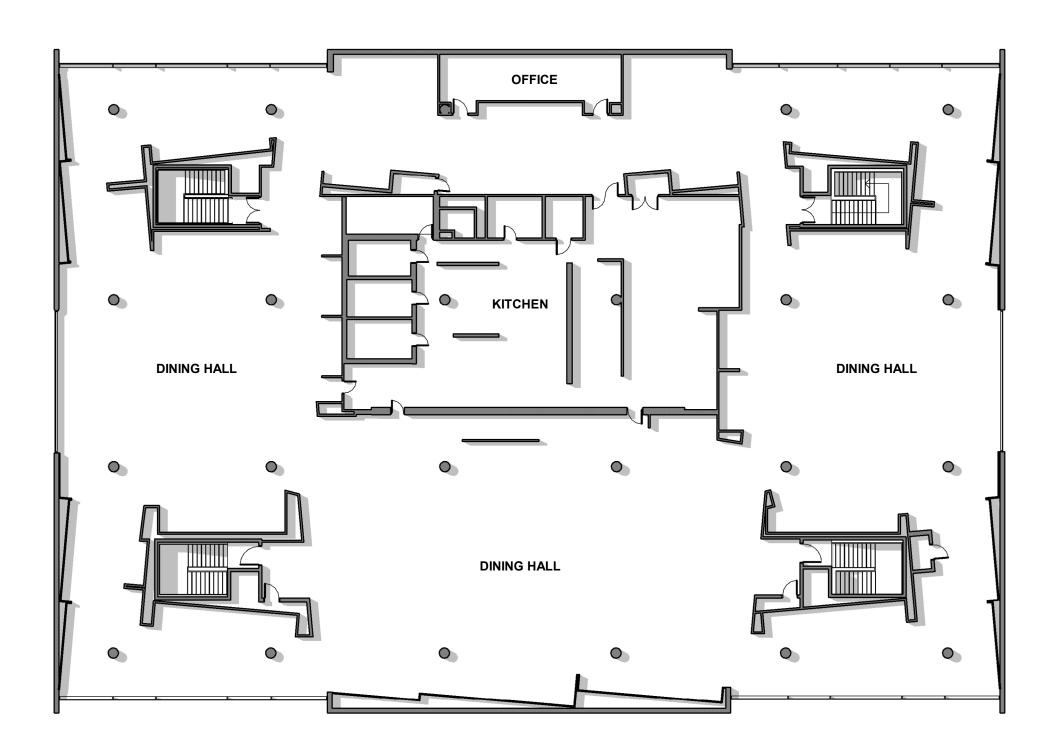


(top) Existing Shipping Lockers

(bottom) Existing stairs to sunken portion of slab around shipping lockers.



Second Level | Floor Plan



### Summary

The second-floor program primarily consists of dining spaces, central kitchen, food preparation, and a single office.

## Second Level | Photos



(above) Existing commercial Kitchen; view of existing equipment.



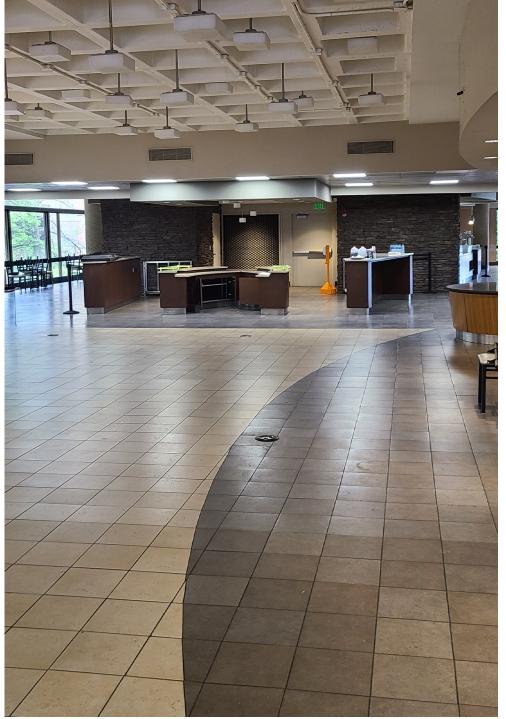
(above) Existing Dining Space; view of exposed waffle slab.



(above) Existing Dining space; view of existing equipment.



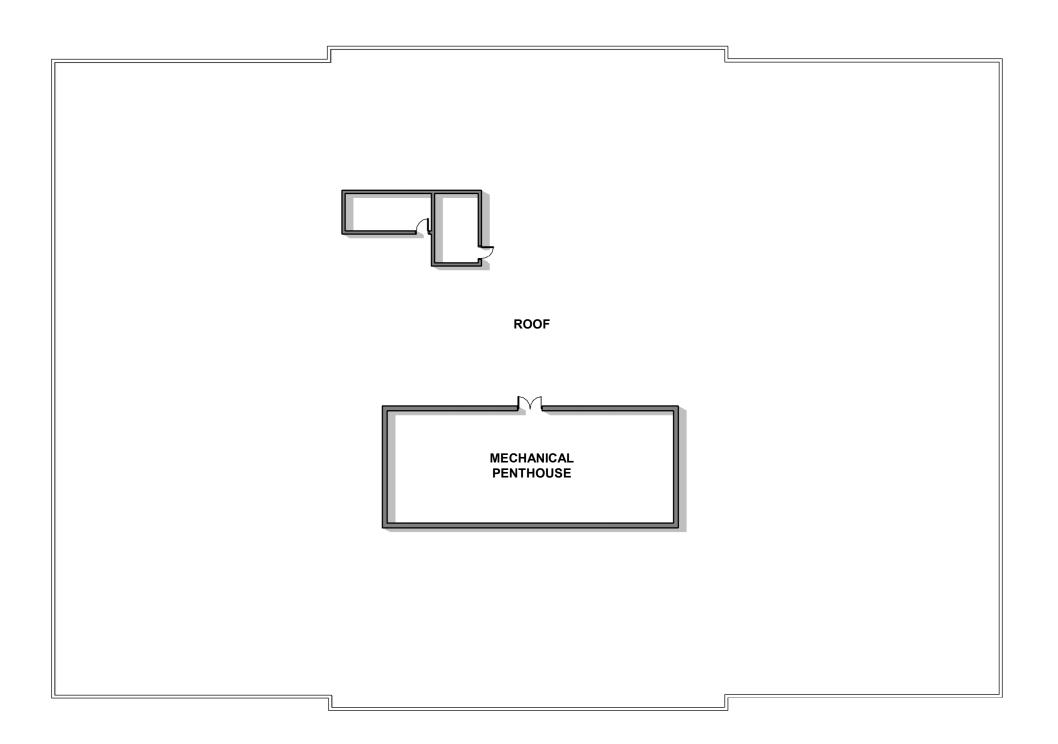
(above) View of existing exterior glass wall system at the existing Dining area.



(above) Existing Dining space.



**Roof Level |** Floor Plan



### Summary

A flat roof with internal drains. There is also a mechanical penthouse and exposed ductwork that serves the second floor. The central stair and existing elevator connect to the Roof Level.

## Roof Level | Photos



(above) Existing Roof; view towards Mechanical Penthouse.



(above) Existing Roof; view of rooftop units and ductwork.



(above) Existing Roof



(above) Existing Roof; view of pooling water.



(above) View of interior of existing Mechanical Penthouse.



### **Building Exterior & Courtyard | Photos**



(above) Existing occupiable roof over portion of Basement Level.



(above) Existing exterior; view of waffle slab overhangs above Ground and Second Levels.





(above) Existing courtyard trees adjacent to building.



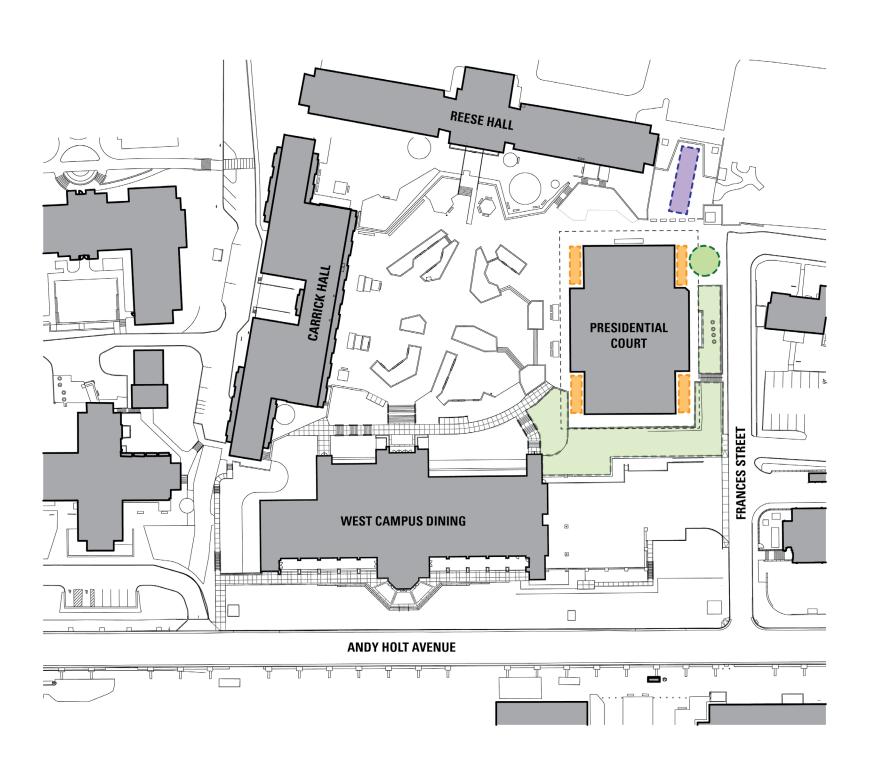
(above) Existing exterior; view of existing waffle slab and adjacent existing planter and railing.



(above) Existing exterior glass wall system at Second Level.

## **Site Considerations**

### **Site Diagrams** | Programming Needs



### **PROGRAM NEEDS**

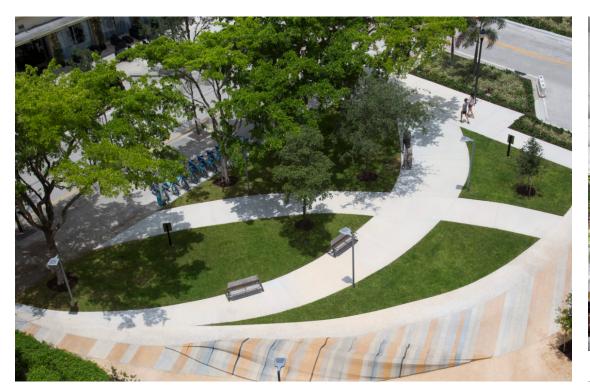
With primarily hardscape occupying the exterior areas of Presidential Court, the main goals of the renovation are to increase the amount of seating and gathering space as well as provide more green space. New seating areas will be located along the perimeter of the building, under the existing overhang. Open lawns will provide much needed green space and a new covered area with seating is proposed in the outdoor courtyard area north of the building.





## **Site Considerations**

**Site Diagrams |** Precedent Images









### **Precedent Images:**

- 1. Landscaped lawn area; synthetic turf recommended in high-use locations.
- 2. Seating areas alongside the exterior, under the building's overhang.
- 3. Light structure to provide shade and introduce a program to the under-utilized plaza in front of the Presidential Court building.
- 4. Informal seating area in the outdoor plaza, under a light shade structure.

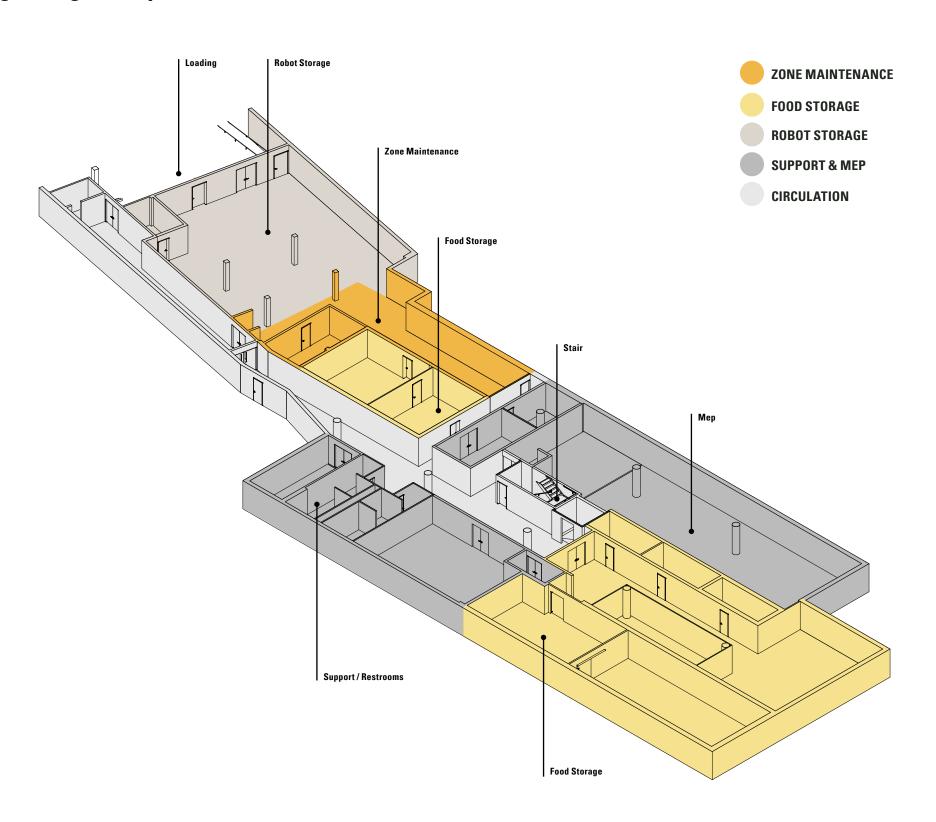


# **Site Considerations**

**Illustrative Site Plan** 

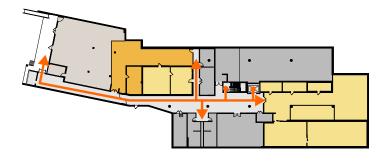


### **Organizing Concepts**

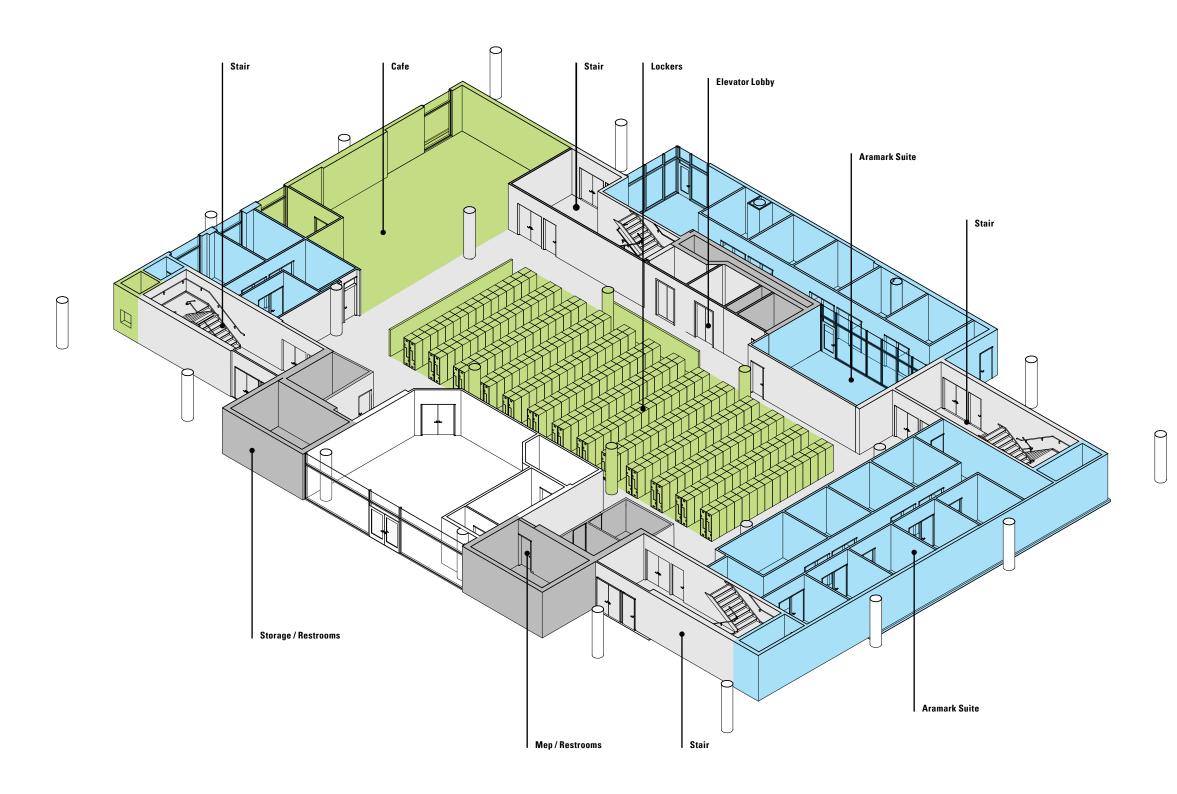


### **BASEMENT LEVEL**

The layout of the basement level is divided into 4 main program categories: Robot Storage, Zone Maintenance, Food Storage and MEP/Support Spaces. Most of the food storage and MEP spaces are to remain in place and minor work is expected on these areas. The main goal for this level is to supply a space for a total of 70 new food service robots that will access the basement via a new ramp at the loading dock. The estimated space requirement for the robots is around 1,500 SF and the provided space of 2,700 SF provides the flexibility of adding more robots in the future. Each of these robots will need a dedicated electrical outlet and data connection. The Zone Maintenance area will share the rest of the former bakery space. The secondary goal for the basement level was to consolidate under-utilized spaces, specifically, the restroom and locker rooms. We are proposing the elimination of locker rooms and more efficient restroom layouts. With the gained space, we are proposing a new building storage area of 1,100 SF.

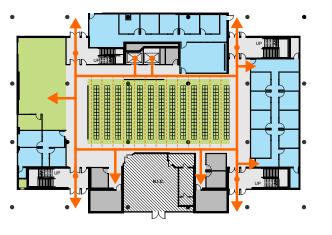


### **Organizing Concepts**



### **GROUND LEVEL**

The Presidential Court building is unique in the sense that it does not have a singular main entry. Instead, it has four distinct yet equivalent entrances that are all utilized by students depending on the starting point of students arriving to the building. Another unique condition of the building's ground floor is the different floor elevations. As a result, the circulation of the ground floor is fragmented, non-accessible and confusing. We have proposed raising the floor to a single elevation. The circulation from all entrances will have the ability to loop around the shipping lockers and access all spaces of this floor. The shipping locker area is envisioned as an open plan space that will allow secondary circulation from any point on the ground floor for students that need to pick up their packages and exit the building. To enhance circulation orientation, we have introduced a new elevator lobby. The remaining program on the ground floor is composed of a Café and the Aramark Office Suite.





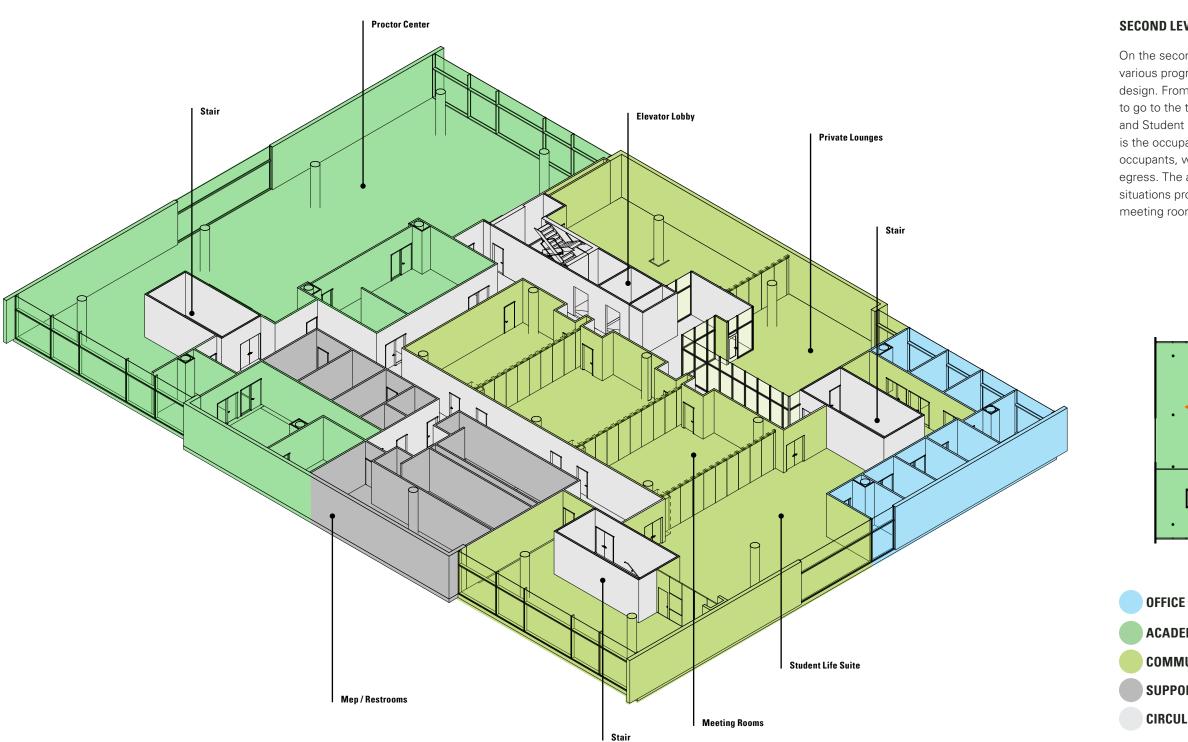




CIRCULATION & SUPPORT



### **Organizing Concepts**



### **SECOND LEVEL**

On the second floor the concept of a circulation loop around the various program spaces is one of the main driving factors of the design. From this central circulation path the students will be able to go to the three primary areas: Proctor Center, Student Life Suite and Student Life Lounge and Meeting Areas. Another key constraint is the occupant load of the floor; the expected occupancy is 1,000 occupants, which necessitated maintaining four separate means of egress. The ability for this program to adapt to diverse needs and situations prompted the use of movable partitions throughout the meeting rooms, conference rooms and lounge areas.



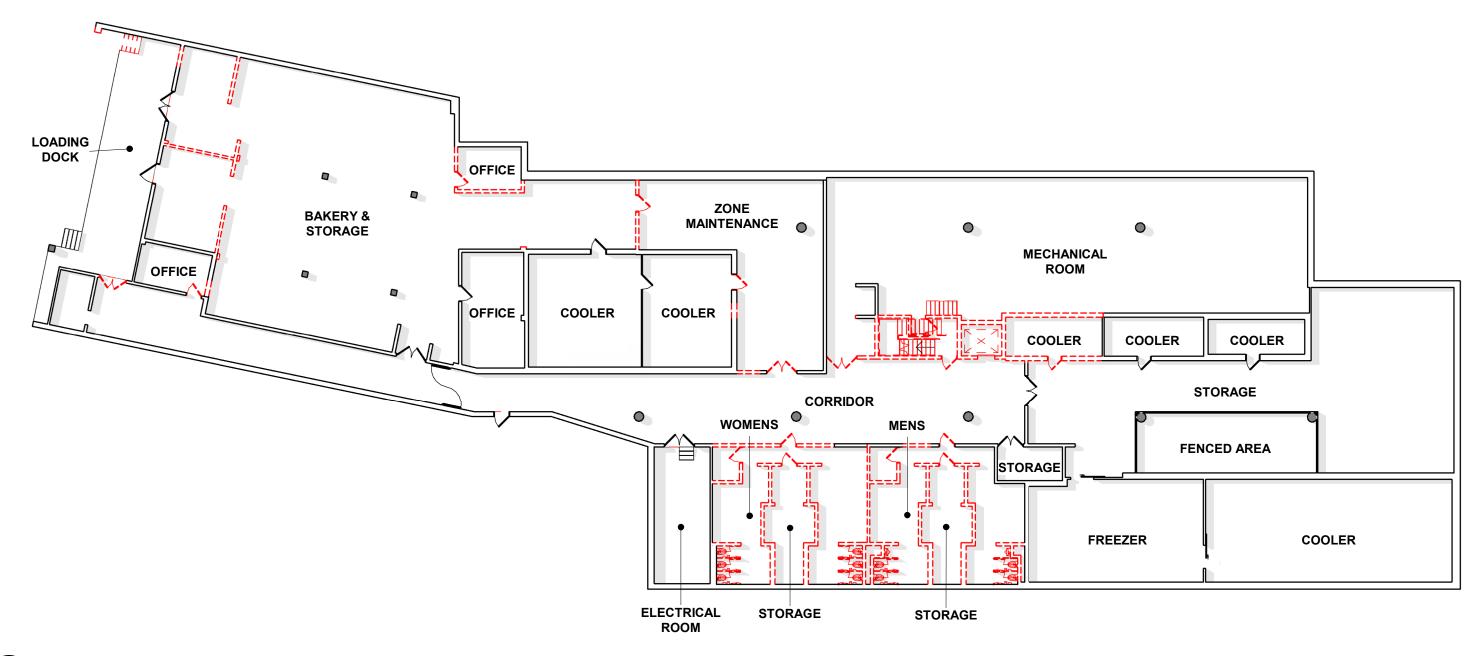
**ACADEMIC** 

COMMUNITY

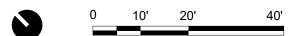
**SUPPORT** 

**CIRCULATION & SUPPORT** 

### **Demolition Scope**

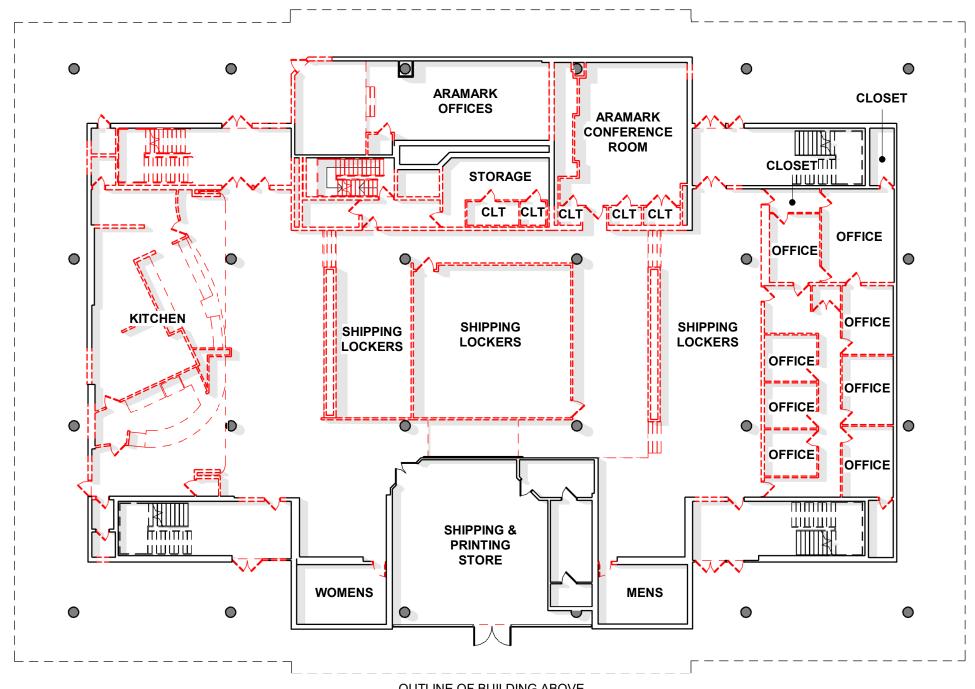


1 Basement Floor Plan - Demolition

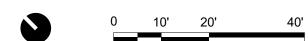




### **Demolition Scope**

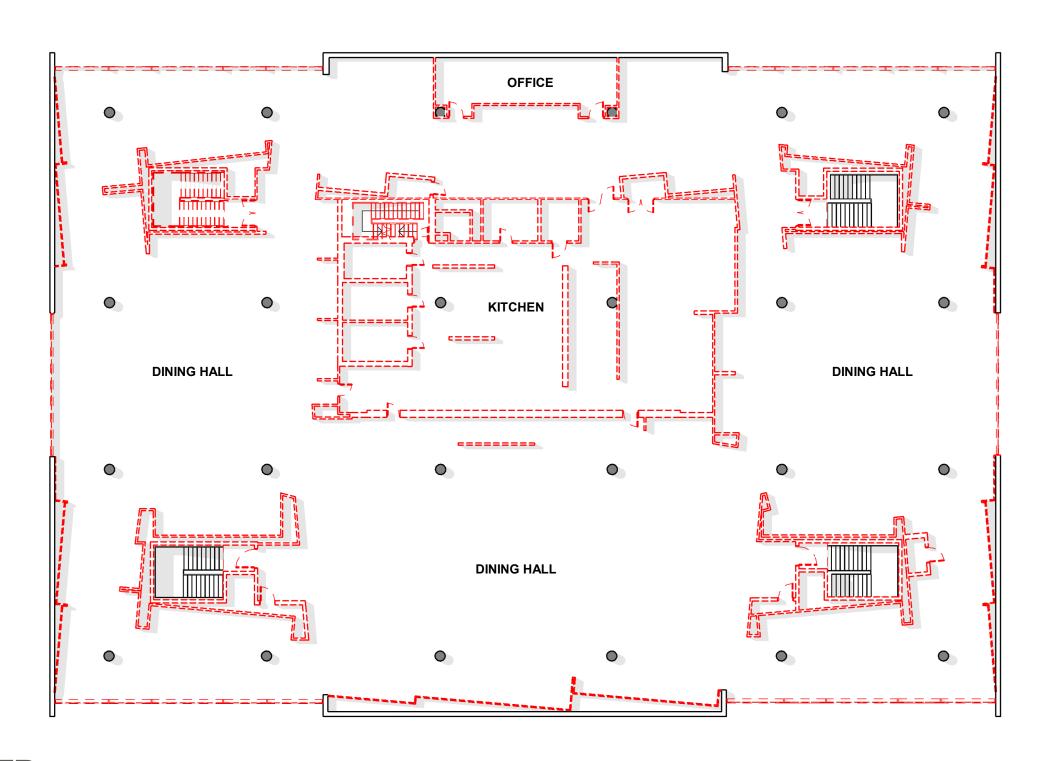






OUTLINE OF BUILDING ABOVE

## **Demolition Scope**

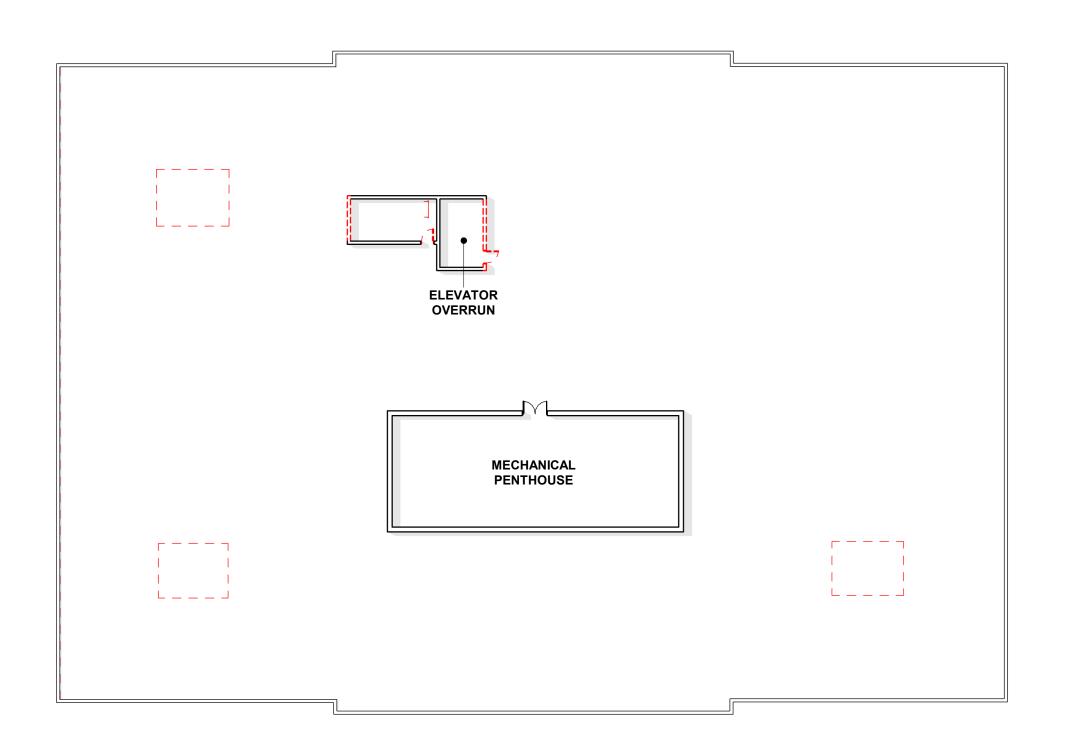








## **Demolition Scope**







## **Design Program**

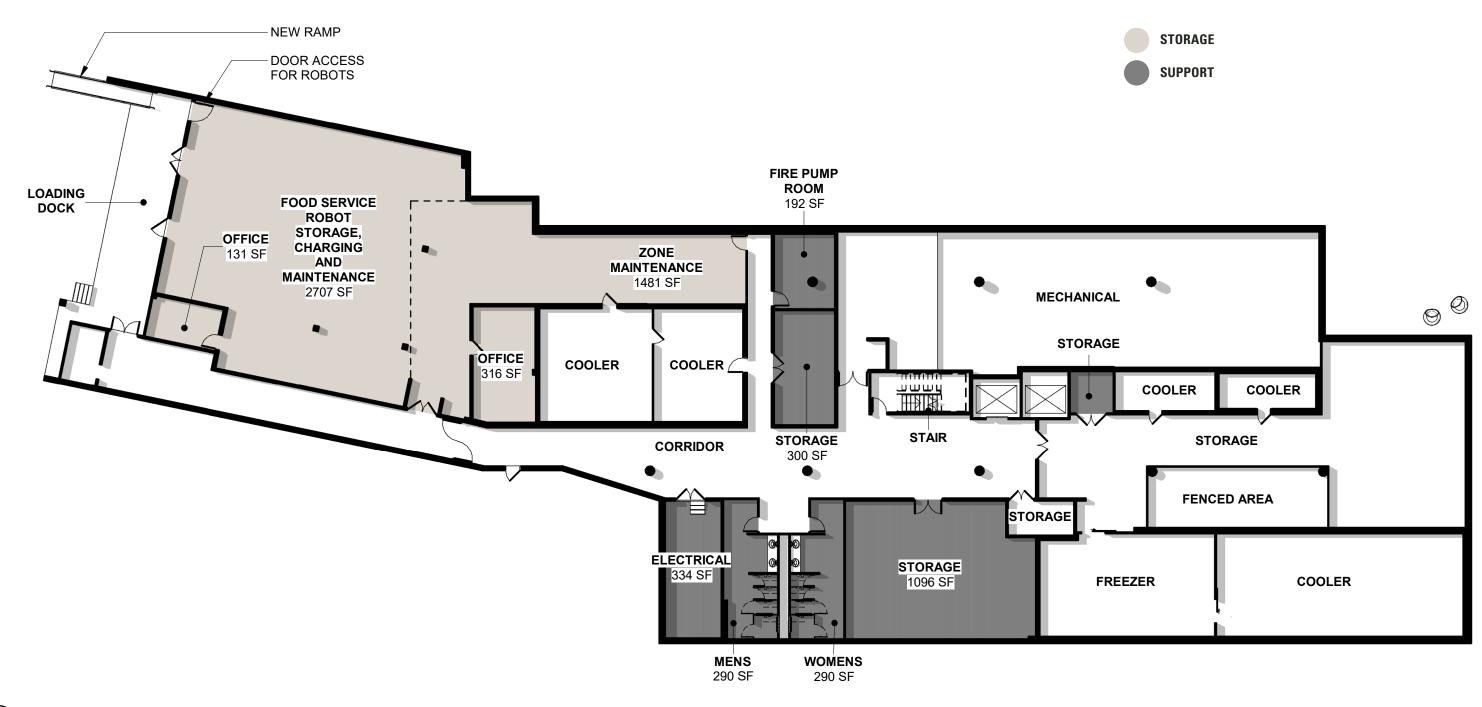
	: Presidential Court Program	Туре	NS	F QTY	Subto		
Basement							
	Food delivery robot storage and maintenance	70 Robots Total	280	0 1			
		Standard Robot Unit: 18"W x 30"L x 20"H					
	Food Services Offices		300	) 1			
	Zone Maintenance		148	0 1			
	Fire Pump Room		192	2 1			
	Electrical Room		335	5 1			
	New Storage		110	0 1			
	New Storage (Small)		300	) 1			
	New Restrooms		580	) 1			
				Subtota	j		
Ground Floor			<u> </u>		Т		
	Shipping Lockers		265	0 1			
	Food Service Concept (Café)		150	0 1			
	University Vol Dining Offices		130	) 4			
	University Vol Dining Open Office		120	) 1			
	Offices		130	) 13			
	Manager Office		200		1		
	Conference Room		500	) 1			
	Reception		200	) 1			
	Support Spaces						
	Existing Restrooms - Finishes Upgrade		480	) 1			
	Electrical Room		120	) 1			
	IDF		120	) 1			
	Janitor's Closet		75	1			
	Storage	1	120	) 1			

UT Knoxville:	Presidential Court Progra	ammina					
		Type		NSF	QTY	Subtotal NSF	
2nd Floor							
		Stude	nt Life Suite		1	1	
	Student Life Meeting Room			2900	1	2,900	
	Student Life - Individual Offices			130	8	1,040	
	Conference Room			1400	1	1,400	
	Student Life - Open Lounge			2300	1	2,300	
	Private Lounge - NPHC			1400	1	1,400	
	Private Lounge - MPC			1400	1	1,400	
	Elevator Lobby			600	1	600	
		Pro	etor Center				
	Proctor Center Lobby			640	1	640	
	Proctor Center - Check-Out			230	1	230	
	Proctor Center	250 Total Seats		6100	1	6,100	
	Proctor Center - Management Office			180	1	180	
	Proctor Center - Surveillance Office			225	1	225	
	Proctor Center - Staff Lounge			620	1	620	
	Support Spaces						
	Electrical			175	1	175	
	Comm			150	1	150	
	Trash/Housekeeping			185	1	185	
	J.C Closet			60	1	60	
	Unisex Restroom			50	1	50	
	Restroom			900	1	900	
	Storage			600	1	600	
		<u>'</u>		ı	Subtotal	19,360	

Total Building NSF 34,307
Total Building GSF 77,018



**Design Program** | Floor Plans



1 Proposed Basement Floor Plan

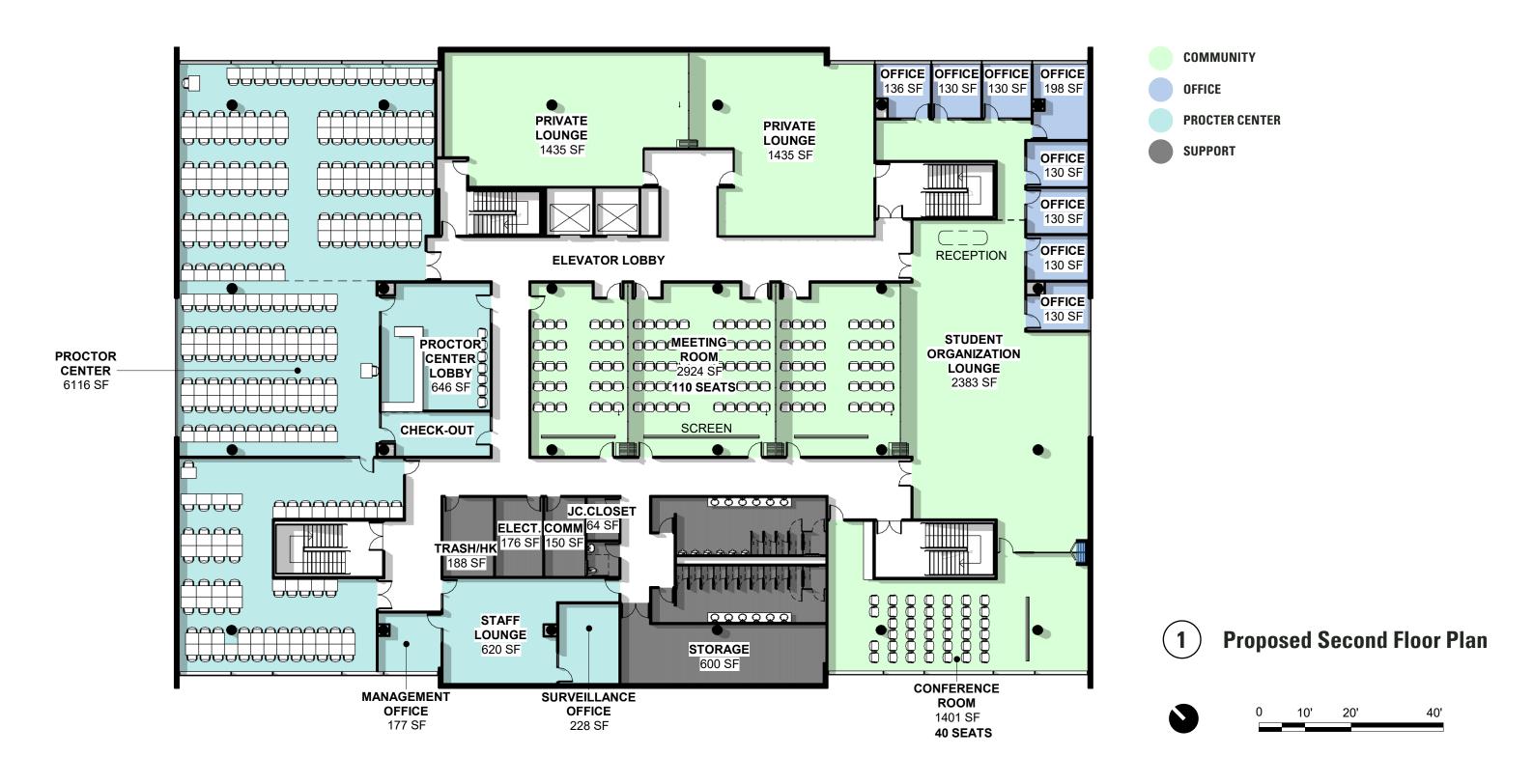
0 10' 20' 40'



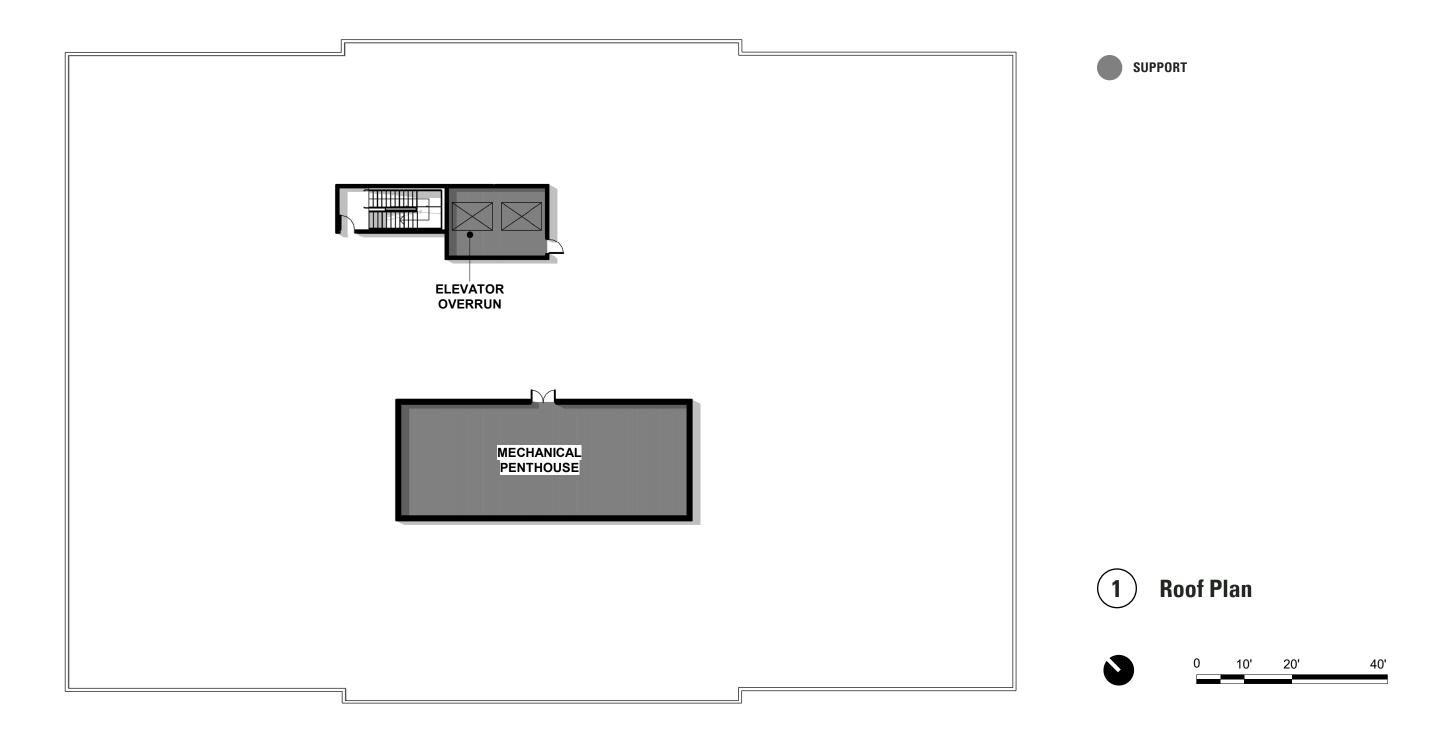
**Design Program |** Floor Plans



**Design Program |** Floor Plans



**Design Program |** Floor Plans



### Narrative | Civil Narrative

#### SITE WORK

### Introduction

This project will involve the renovation of the existing Presidential Court building along with the adjacent pedestrian courtyard area. The project west side of Frances Street, south of Caledonia Drive and north of Andy Holt Avenue on the University of Tennessee campus in Knoxville, Tennessee. The project will include site demolition, building renovation/construction, amphitheater, sidewalks, walls, drainage, utilities and other infrastructure improvements.

### **Site Demolition**

Prior to any construction activities, the contractor shall obtain all necessary permits (i.e., TDEC CGP SWPPP/NOC, utility, demolition, building). The contractor shall also contact Tennessee 811 for marking of the public utilities at least three days prior to the start of any construction activities. Demolition on the site shall consist of the removal of the concrete sidewalks around the building and in the courtyard, stairs, asphalt paving, light poles, curb, benches, and trees as required for construction of the proposed building and site improvements. Pavement demolition shall remove all layers of the existing gravel/asphalt parking areas, concrete drives, sidewalks, and curbs to subgrade.

Site utilities (water, sewer, gas, storm, etc.) removal will be done on an as-required basis. All utility service connections to the original building shall be removed or capped appropriately. All above ground utilities are to be removed. Underground utilities shall either be removed or abandoned in place (filled with flowable fill and capped).

All materials except that belonging to a public or private utility company shall become the property of the contractor and shall be disposed of off – site. Rubbish and debris will be removed from the site daily to avoid accumulation at the project site. The contractor will need to coordinate with the utility owners prior to demolition of utilities.

### Site Layout

The project will consist of the site preparation and construction of the new pedestrian courtyard area the building improvements. The building and site improvements will be bound on the east by Frances Street, on the south by Andy Holt Avenue, on the north by Caledonia Drive.

The site pavement will consist of new concrete sidewalks (6" concrete with 4" base). The proposed landscaped and pedestrian area will be bound by 18-inch concrete post curb. Any asphalt pavement will be repair or replacement where necessary and shall match the existing section depth and shall be a minimum of 8-in base. 3-inch binder, and 2-inch surface.

### Grading

Grading activities will commence once the site demolition is complete and all of the debris has been removed. The site shall be cleared and grubbed of all remaining surface materials. There shall not be boulders, stumps or other obstructions remaining on the site. This type of unsuitable material shall be removed to a minimum depth of 2 feet below subgrade (or in accordance with the geotechnical engineer's recommendations). Material that is not to be used during final construction is to be disposed of off-site. Any topsoil on the site shall be stripped to full depth and stockpiled at an approved location. The grading for the site shall be necessary in order to set the courtyards at the proper elevation. All areas to receive fill shall be proof rolled prior to placement. Any proof rolled area that exhibits weak or unsatisfactory material shall be undercut and backfilled using a method approved by the geotechnical engineer (e.g. #57 or #67 stone). Fill material shall be placed in lifts not exceeding 8 inches. Areas beneath the buildings shall be compacted to 100% maximum dry density. Where required, topsoil shall be placed a minimum of 6 inches in depth. During construction the contractor will be required to maintain a free draining site; water will not be allowed to accumulate on the site.

### **Storm Water System**

Storm drainage on the site shall consist of swales, catch basins, areas drains, piping, and water quality structure. Drainage structures will be placed as required to keep the site free-draining. There will be approximately 15 drainage structures arranged around the site. The pipe system within the site shall be 15-inch, 18-inch, and 24-inch HDPE or RCP pipe. Roof drainage from the buildings shall be connected together with downspout boots and minimum 8-inch PVC pipe and connected to the storm structures. The water quality structure will be a Downstream Defender, Model 8 or equivalent. UT's MS-4 permit requirements must satisfied using infiltration, stormwater treatment or other combination that is satisfactory to the campus.

#### **Erosion Control Measures**

A Storm Water Pollution Prevention Plan (SWPPP) will be developed to provide direction and instruction for maintaining appropriate erosion controls in accordance with the Tennessee Department of Environment and Conservation (TDEC) and the UT MS-4 permit requirements. During construction, measures will be taken to prevent unnecessary erosion of the exposed soil and to prevent sediment from leaving the site. These measures will include properly built construction access drives, storm sewer inlet protection and perimeter silt fence. Erosion and sediment measures and other protective measures will be maintained by the contractor in effective operating condition. Temporary structural practices will be removed once the corresponding disturbed drainage area has been permanently stabilized unless they are designed to remain in place

#### Utilities

The water supply for the building will come from the existing water main on Frances Street. There will be two domestic service connection (4-inch) made with a tapping valve and sleeve, as well as corresponding KUB metering system. There will be one fire service connection, with a tapping valve and sleeve to serve the sprinkler system. There will be a post indicator valve (PIV) and a fire department connection (FDC) for the connection, installed in the landscape area on the east side of the Presidential Court building. The contractor shall coordinate all taps with the Knoxville Utilities Board (KUB). The contractor shall be responsible for testing all new lines and connections.

The building's existing sanitary sewer line is an 8-inch PVC exiting on the south side of the building. This service line shall be inspected by camera or other approved method to verify its condition. This inspection will determine if it will be replaced. All connections to a structure shall be watertight with a gasketed connection. Contractor shall coordinate the service connection with the KUB. The contractor is responsible for testing all proposed sanitary sewer lines and connections.

### **Narrative** | Architectural Narrative

#### **BASEMENT LEVEL**

#### Demolition

Demolition on this level is limited to the existing Men's and Women's Restrooms and Lockers, select partitions at the Bakery area, removal of the existing egress stair, and removal of the existing elevator and adjacent cooler. The remaining spaces dedicated to food storage are existing to remain.

### **New Program**

The main intervention on the Basement Level is the introduction of a dedicated space for Food Service Robot Storage, Charging and Maintenance. The Food Service Robot space requires direct access to the exterior, thus is positioned adjacent to the existing loading dock. A new ramp is to be constructed, which will allow for the robots to ingress and egress from the building. The Food Service Robot space will initially support 70 robots, however additional space is provided for future growth in robot quantity. Each of the robots requires a dedicated electrical outlet and data connection.

The new program elements at the Basement Level consist of a revised layout of the Zone Maintenance area, a consolidation of restroom space for a more efficient footprint, and the addition of general Storage rooms. Minimal scope regarding finishes and furniture is expected on this level, as the spaces are all non-student-facing program.

#### Circulation

The existing elevator is to be replaced with a new elevator, located at the existing elevator shaft location. The existing slab opening size(s) and elevator pit must be coordinated with the new elevator configuration. The shaft for the new elevator is to extend down to the Basement Level. The existing orientation of the stairs will be flipped, with the new stairs connecting to the ground and second floors.

### MEP

The existing Mechanical and Electrical rooms are to remain. A new sprinkler system is to be installed, therefore a new Fire Pump room will be required; the proposed location is adjacent to Zone Maintenance with direct access to the exterior of the building.

#### **GROUND LEVEL**

#### Demolition

The majority of existing spaces on this level are part of the demolition scope, as well as two existing egress stairs. Only four egress stairs are required to support the new program (five existing); the north egress stair is removed to allow for the Cafe to occupy a prime exterior corner for increased visibility and traffic. The center egress stair is demolished to allow for a new stair configuration. In addition, the existing elevator is to be demolished.

### **New Program**

The ground level features four (4) distinct entrances to the building two off Frances Street and two from the courtyard area. The main program elements on this floor are comprised of:

- Café
- Shipping Lockers
- Aramark Office Suite

### Cafe

The new Cafe is to be located in the same location as the existing commercial Kitchen space. This location should provide efficiencies as many of the required MEP service connections are already established in this area of the building. The specific layout of the Cafe is TBD by the operator of the space. A Cafe Management office is accounted for in the program, as well as a Cafe Pick-up Window.

### Shipping Lockers

Located in the center of the floor, this area will have 24-hour access for students to retrieve their packages. Each bank of lockers will have an individual kiosk for delivery retrieval. Easy circulation access is critical for this portion of the program and acoustics must be considered for ceiling design and finishes.

### Aramark Office Suite

It is desired to keep all existing entrances to the building, therefore the Aramark Office Suite is split into two wings. The north wing consists of a Reception area with an improved entry from Frances Street, five (5) Private Offices and a Conference room. The Conference room can be accessed from both the interior of the suite or the public corridor to maximize flexibility of use. The east wing is composed of a smaller Reception area, eight (8) Private Offices and one (1) Executive Private Office.

#### Circulation

The existing elevator is to be replaced while using the existing shaft. A new MRL traction elevator is to be added to connect the Ground and Second Levels. A new elevator lobby is programmed to be highly visible off the main circulation route.

#### Floor Slab Infill

Another large scope item for this level is the infilling of the floor slab to provide accessible circulation access to all program spaces. Currently, the slab is lower at the center of the building; this depressed portion is to be infilled. This will remove the need for stairs and ramping to access the central Shipping Locker space.

#### MEP/Support Spaces

There are minimal MEP and support spaces on the Ground Level. Most of the MEP spaces for the building are located at the Basement and Roof. The MEP and support spaces on this level are as follows:



### **Narrative** | Architectural Narrative

- Sub-Electrical Room
- Sub-IDF Room
- Custodian Closet
- Men's and Women's Restrooms
- General Storage
- ATM (Relocated to northwest corner of building with exterior access)

#### SECOND LEVEL

#### Demolition

The majority of existing spaces on this level are part of the demolition scope, as well as two existing egress stairs. Only four egress stairs are required to support the new program (five existing); the north and central egress stair are removed. In addition, the existing elevator is to be demolished.

#### **New Program**

The second level features two (2) main program elements:

- Proctor Center
- Student Life Office, Meeting and Lounge space

#### Proctor Center

The Proctor Center consists of a check-in lobby adjacent to the elevator lobby. The Proctor Center Lobby accounts for a small seating area for those waiting to check-in, a central desk, and separated circulation paths for students entering and exiting the center. The Proctor Center is programmed to seat 250 students with a combination of 36" and 42" wide stations. The Proctor Center is divided into two main spaces; when the center has lower occupancy, one of the rooms can be closed for improved security and efficiency of the staff. Based on the estimated occupant load of this area, the Proctor Center has 3 egress exits. Students that wish to take a bathroom break or are exiting the room after test completion will do so through a secured exit point next to the

Proctor Center Lobby. Additional program related to the Proctor Center:

- Management Office
- Staff Lounge
- Surveillance Office

Special consideration must be given to acoustical separation between the Proctor Center and the adjacent spaces.

#### Student Life Office, Meeting and Lounge space

The entrance to the Student Life suite is adjacent to the main elevator lobby. A reception area is located directly inside the suite's main entry. Beyond the reception area are eight (8) private offices. The Student Organization Lounge is the primary programmatic component of the suite. The Student Organization Lounge is supported by an adjacent Conference room that seats 40 occupants. The partition that separates the lounge from the conference space is intended to be movable or foldable to allow the spaces to combine and provide maximum flexibility to the users.

A large Meeting room is centrally located on the floor, adjacent to the Student Life Lounge. The Meeting room is divisible into three (3) individual Meeting rooms via the use of movable partitions. The Meeting room(s) is programmed for a total of 110 seats. The Meeting room is separated from the Student Life Lounge via a movable partition, allowing for additional flexibility of use.

Adjacent to the main elevator lobby and the central Meeting room, two (2) Private Lounges are included in the new building program. The new Private Lounges are meant to provide space for student groups to gather.

#### Circulation

The new elevators (2) and new central egress stair connect up to the second level.

#### MEP/Support Spaces

There are minimal MEP and support spaces on the Second Level. Most of the MEP spaces for the building are located at the Basement and Roof. The MEP and support spaces on this level are as follows:

- Sub-Electrical Room
- Sub-IDF Room
- Trash and Housekeeping Room
- Custodial Closet
- Men's and Women's Restrooms
- One (1) All-Gender Restroom
- General Storage

#### **ROOF**

The roof scope is as follows:

- New SBS Modified Bitumen Roof Membrane per UTK design standards for low-slope roofs
- Removal of exposed ductwork
- Removal and replacement of rooftop mechanical units; refer to MEP narratives
- Expansion of existing elevator over-run enclosure to accommodate new elevator over-run

#### **EXTERIOR/FACADE IMPROVEMENTS**

- Selective brick repairs
- New glass wall systems throughout
- New exterior lighting
- New building entrance systems
  - New automatic-door operators
- New handrails on building perimeter walls
- Video surveillance security system

### Narrative | Structural Narrative

The Presidential Court Programming includes renovation of the existing building which is located at the corner of Frances Street and Melrose Avenue SW. The structural renovation items include the following:

- Raise the depressed computer lab, merchandise store, technology studio, west and east seating, closets, support, lobby access, and corridor to align with the First Floor elevation.
- Raise the depressed coolers, freezer, and kitchen area to align with the Second Floor elevation.
- Eliminate existing Stair A and infill the slab opening at the First and Second Floors.
- Install a new elevator adjacent to existing elevator.
- Remove and replace a portion of the existing mechanical rooftop units.
- Add a covered area above the existing loading dock roof structure.
- Remove and replace concrete slab-on-grade as required to modify and/or install underground utilities.

The depressed area at the First Floor could be raised using lightgauge stud and track knee walls with a lightweight concrete slab on non-composite metal deck reinforced with welded wire fabric.

The depressed areas at the Second Floor could be raised by using lightweight concrete reinforced with welded wire fabric. Rigid insulation could be used to reduce the concrete slab thickness and reduce the amount of dead load added to the floor structure.

Infilling the slab opening at the First and Second floors in the area of Stair A could be accomplished by installing steel beams supporting a lightweight concrete slab on composite metal deck reinforced with welded wire fabric.

The new elevator could be installed by shoring the existing concrete floor/roof structure, cutting an opening through the floor/roof structure for the shaft, installing new 8" concrete walls to provide support of the existing concrete floor framing, and installing a new pit with concrete walls and foundation. A hoist beam may be required to install the elevator in the shaft.

The existing roof currently contains seven mechanical units. The existing units will be removed and replaced by new units. If the weight of the new units is more than the existing units or if the new units are located in other areas, the capacity of the roof structure will need to be reviewed.

The addition of a covered area above the existing load dock will require review of the existing structure to support the new canopy structure

Adding steel framing, lightweight concrete slabs, light-gauge framing, and a canopy structure will increase the dead load supported by the existing floor structure. The existing floor structure capacity at the First Floor, Second Floor, Roof, and Loading Dock will need to be reviewed to support the additional dead load and the required building code live loads. Strengthening of the floor structure may be required.

Modifications and/or installation of underground utilities may require removal and replacement of the existing 5" concrete slab-on-grade. The slab could be saw cut to access to dig for the utility work. Steel reinforcing bar dowels could be drilled into the edge of the saw cut and installed with the appropriate adhesive. A 5" concrete slab-on-grade reinforced with welded wire fabric could be installed to fill back these areas.



### Narrative | Mechanical Narrative

#### **GENERAL**

This narrative encompasses the Mechanical scope of work for the renovation of the existing Presidential Court Building for UTK. The Mechanical system will consist of multiple air handling units in the basement and scattered on the roof to condition the spaces. The chilled water coils in the air handling units will be reconnected to the existing chilled water system entering the building. The heating system will utilize the existing high-pressure steam entering the building on the east corner of the mechanical room in the basement.

Narrative is based on a renovation of a 3 story building with a program area of 77,000 sf.

Reference UT Mechanical Design Criteria v4 2018 and UTK Facilities Services 2020 Design Guidelines and Preferences Feb 2020 for additional information and requirements.

### EXISTING CENTRAL HEATING AND COOLING SYSTEM (DEMOLITION)

Currently, the existing building is served by the following:

- . (4) Multi-Zone Dual Deck Air Handling Units
- a. (2) are located on the service level and serve the Service Level and the First Floor
- b. (2) are located in the penthouse on the roof serving the Second Floor
- 2. (1) Single-Zone Air handling unit mounted on the roof serving the Second Floor
- 3. (5) Make Up Air units serving kitchen hoods on the Second Floor.
- 4. (7) Kitchen Exhaust Fans serving kitchen hoods on the Second Floor
- 5. (8) Kitchen Hoods on the Second Floor
- 6. (15) General exhaust fans serving restrooms from the Service level, First Floor, and Second Floor.
- 7. High Pressure to Low Pressure steam Pressure Reducing Station in the mechanical room on the Service Level
- 8. Natural gas on the roof is utilized for the kitchen hood make up air unit heaters.

All existing air handling units and associated duct work, kitchen hoods and fans and associated duct work, exhaust fans and associated duct work, condensing units, and pressure reducing station to be removed prior to any new mechanical work to be installed. The steam and steam condensate pipe and chilled water pipe will be removed back to pipe entries in the building.

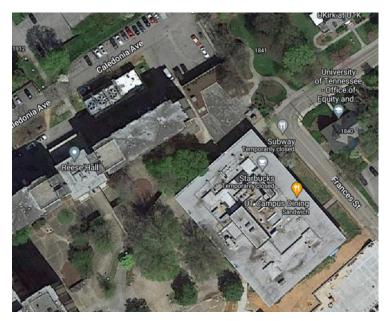
The natural gas riser up to the roof to remain and be utilized for new rooftop air handlers heat.

The service level currently houses (6) walk- in coolers and (1) walk-in freezer on the service level served by condensing units adjacent to the loading dock. The coolers and freezers on the level are to remain.

### Narrative | Mechanical Narrative

#### CENTRAL HEATING AND COOLING SYSTEM

The chilled water is served from the chiller plant behind Reese Hall on Caledonia Avenue. The new chilled water load is intended to be roughly 650 tons, 325 gpm. The existing chilled water pumps in the plant serving the Presidential Court building and associated 6" chilled water is adequately sized to accommodate the renovation. No new chilled water piping outside of the building will be required. New chilled water piping will be required throughout the building for distribution to all air handling units and fan coil units. The picture below shows the location of the chilled water plant in relation to the Presidential Court building. Chilled water will be distributed to the mechanical room on the service level and the roof to the air handlers on the roof. The existing chilled water plant is delivering 42°F chilled water throughout its system and returning 54°F water from the coils that are being served.



Existing 6" steam and 6" steam condensate into the building should be utilized. The 6" steam and steam condensate enter the mechanical room in the southeast corner. The existing steam is 125# psi and will require a pressure reducing station, meeting the university standard, to decrease the pressure of the steam to 30# psi to be connected to the new "steam-to-hot water" and "steam-to-domestic hot water heater" in the basement. Steam condensate shall be connected from all heat exchangers and traps back to the central steam condensate system.

The heating hot water system will distribute 3" heating hot water from the steam to hot water heat exchanger to the heating hot water coils in the air handling units and the VAV boxes throughout the building. The heating hot water will require (2) new hot water pumps in the basement. The hot water pumps will be inline style pumps capable of 60 gpm at 45 ft. of head. The hot water pumps will require a new air/dirt separator, make up water connection, and expansion tank.

There is an existing 2" natural gas line from the meter on the northeast corner of the property that enters on the service level and routes to the central stair and up to the roof to service the existing, to be demolished make up air units and kitchen equipment on the roof and 2nd level, respectively. This existing line is intended to remain for reuse on the roof top equipment for central furnaces in the air handling units to provide hot air on the roof top units serving the 2nd level.

Chilled water and heating hot piping shall be welded steel 2.5" and above and copper 2" and below. Insulation shall be fiberglass with all service jacket, with insulation per UT Mechanical Design Criteria.

Steam and steam condensate piping shall be schedule 40 welded or seamless black steel. Insulation to be fiberglass with all service jacket, where exposed, and Pittwrap where below grade.

Gas piping to be schedule 40 welded or seamless black steel.

#### **SPACE COOLING AND HEATING**

New air handling units with chilled water coils, heating hot water coils with pre/post filters equal to MERV 8/13, respectively, and new supply and return fans in each unit. The new air handling units on the service level and the 1st floor will be connected to VAV boxes with hot water reheat for individual zone controls. The new air handling units will be in the mechanical room on the service level. Existing area ways and outside air louvers and relief air louvers in the mechanical room to be utilized for the new air handling units

The rooftop will consist of (3) individual, single zone air handling units. New rooftop units will be served by chilled water coils, and gas furnaces, with pre/post filters equal to MERV 8/13, respectively, and new supply and return fans in each unit. The air handling units will require routing to existing structure openings in the concrete roof top. NO NEW OPENINGS WILL BE ALLOWED FOR DUCTWORK TO THE 2nd LEVEL. The structure will allow for individual 18"x18" penetrations through the existing roof to the level below.



### Narrative | Mechanical Narrative

See attached floor plan with narrative for air handling unit locations and services.

#### AHU-1 (Service Level)

- Supply Fan
  - 10,500 cfm @ 2.5" ESP
- Return Fan
  - 9,500 cfm @ 1.5" ESP
- Economizer
- Chilled Water Coil
  - 42°F / 54°F entering water temperature and leaving water temperature
  - 80°F / 67°F entering air conditions (DB / WB)
  - 54°F / 54°F leaving air conditions (DB / WB)
  - ~425,000 btu/hr
  - 71 gpm
- Pre-Heat Coil
  - 25°F entering air condition (DB)
  - 40°F leaving air conditions (DB)
  - 85,000 btu/hr
  - 10 gpm
- VAV Boxes
  - 7 boxes will be required totaling 20 gpm of heating hot water to raise the temperature from 40°F to 95°F throughout the system.
- Associated Exhaust Fan (EF-3 for bathrooms / Janitor's Closet)
- 1,000 cfm
- 0.75" sp
- Belted motor with downblast configuration

#### AHU-2 (1st Level)

- Supply Fan
  - 9,800 cfm @ 3.0" ESP
- Return Fan
  - 8,700 cfm @ 1.5" ESP
- Economizer
- Chilled Water Coil
  - 42°F / 54°F entering water temperature and leaving water temperature
  - 80°F / 67°F entering air conditions (DB / WB)
  - 54°F / 54°F leaving air conditions (DB / WB)
  - ~392,000 btu/hr
  - 65 gpm
- Pre-Heat Coil
  - 25°F entering air condition (DB)
  - 40°F leaving air conditions (DB)
  - 80,000 btu/hr
  - 10 gpm
- VAV Boxes
  - 18 boxes will be required totaling 20 gpm of heating hot water to raise the temperature from 40°F to 95°F throughout the system.
- Associated Exhaust Fan (EF-3 for bathrooms / Janitor's Closet)
  - 900 cfm
  - 0.5" sp
  - Belted motor with downblast configuration

### AHU-3 (2nd Level – Student Organization Lounges/Meeting Rooms) (Single Zone)

- Supply Fan
  - 9,600 cfm @ 1.5" ESP
- Return Fan
  - 9,600 cfm @ 1.0" ESP
- Economizer
- Chilled Water Coil
  - 42°F / 54°F entering water temperature and leaving water temperature
  - 80°F / 67°F entering air conditions (DB / WB)
  - 54°F / 54°F leaving air conditions (DB / WB)
  - ~385,000 btu/hr
  - 65 gpm
- Heat Furnace (Gas Heat)
  - 25°F entering air condition (DB)
  - 100°F leaving air conditions (DB)
  - 407,000 btu/hr

#### AHU-4 (2nd Level – Student Life Offices) (Single Zone)

- Supply Fan
  - 3,000 cfm @ 1.0" ESP
- Return Fan
  - 3.000 cfm @ 1.0" ESP
- Economizer
- Chilled Water Coil
  - 42°F / 54°F entering water temperature and leaving water temperature
  - 80°F / 67°F entering air conditions (DB / WB)
  - 54°F / 54°F leaving air conditions (DB / WB)
  - ~120,000 btu/hr
  - 20 gpm
- Heat Furnace (Gas Heat)
  - 25°F entering air condition (DB)
  - 100°F leaving air conditions (DB)
  - 163,000 btu/hr

#### AHU-5 (2nd Level – Testing Center/Support Rooms) (Single Zone)

- Supply Fan
  - 9,000 cfm @ 1.5" ESP
- Return Fan
  - 7.900 cfm @ 1.0" ESP
- Economizer
- Chilled Water Coil
  - 42°F / 54°F entering water temperature and leaving water temperature
  - 80°F / 67°F entering air conditions (DB / WB)
  - 54°F / 54°F leaving air conditions (DB / WB)
  - ~362,000 btu/hr
  - 62 apm
- Heat Furnace (Gas Heat)
  - 25°F entering air condition (DB)
  - 100°F leaving air conditions (DB)
  - 395,000 btu/hr
- Associated Exhaust Fan (EF-3 for bathrooms / Janitor's Closet)
  - 1,100 cfm
  - 0.5" sp
  - Belted motor with downblast configuration

### **Narrative** | Mechanical Narrative

#### Miscellaneous

Provide the following additional systems or components:

- New 2.5 ton mini split will be utilized in Campus Shipping Center, labeled N.I.C. on the plans. This space is intended to remain in function during construction.
- Provide electric cabinet heaters in stairs for freeze protection
- Provide ventilation fans and electric unit heater for fire pump room and all mechanical spaces
- Provide exhaust ventilation for all trash and trash chute rooms and Janitor Closets
- Each IT closet and Electric room shall be provided with independent, 1-ton chilled water fan coil units.
- Refer to figure X for typical ductwork routing from water source heat pumps serving bedroom suites.

#### **HVAC CONTROLS**

Connect all HVAC systems back to campus HVAC control system for monitoring and energy management. Controls shall be campus standard JCI or Schneider. All controls (to include duct

temperature sensors) will report to BMS front end with graphical displays. Provide the following additional meters and monitoring points at the central BMS:

- Chilled water flow and BTU monitoring
- BTU and Flow monitoring for Domestic hot water heating system
- Flow monitoring and reporting from gas meter.
- Interface to building electric meter.



### **Narrative** | Electrical Narrative

Provide all labor, materials, tools and services for a complete installation of equipment and systems specified herein. Principal features of work included are:

- Primary Electrical Distribution
- Switchboards
- Panelboards
- Power Wiring and Secondary Distribution
- Interior Lighting Fixtures and Control Equipment
- Exterior Lighting Fixtures and Control Equipment
- Convenience Outlets
- Telephone and Data Outlets and Wiring as required
- Electrical Control and Interlock Wiring as required by Mechanical Drawings, Specifications, or Manufacturer's Schematics
- Heating, Ventilating and Air-Conditioning Equipment Power
- Plumbing Equipment Power
- Standby Generator
- Automatic Transfer Switches
- TV Distribution Rough-in
- Elevators
- Surge Protection Devices
- Ground Bars
- Fire Alarm System

Comply with applicable state, and federal codes. Comply with applicable requirements of recognized industry associations which promulgate standards for the various trades. Employ only qualified journeymen for this work. Employ a competent qualified mechanic to supervise the work. Perform work specified in Division 26 in accordance with standards listed in architectural narrative. All materials and equipment used in carrying out these specifications to be American made unless approved otherwise by the Engineer

and to be new and have U.L. listing, or listing by other recognized testing laboratory when such listings are available. Construction materials shall meet Factory Mutual guidelines. Properly identify all starters, contactors, relays, safety switches, and panels with permanently attached black phenolic plates with 1/4 white engraved lettering on the face of each attached, with two sheet metal screws. Starters and relays connected by the electrical tradesman to be identified by him whether furnished by him or others.

The existing Presidential Court building is currently served by the UTK electrical distribution system via a 13.2kV-120/208V wye 1000kVA pad mounted transformer fed from and an existing UTK owned vista switch. The Transformer and existing 3000 amp main distribution panel and service conductors were replaced as a part of the Presidential Court Dining Renovations project in 2009.

The demolition and construction work for this project shall be conducted in phases as to allow the current tenants to remain in the building. Any demolition work and or associated power outages will need to be coordinated with the University and the current tenants.

Existing 120/208 panels that are no longer required and/or at end of expected lifespan are to be demolished and are shown in table to the right:

PANEL NAME	VOLTAGE	AMP RATING	TYPE	LOCATION
A.BAKERY	120/208	400	MLO	BASEMENT
B.BAKERY	120/208	225	MLO	BASEMENT
В	120/208	400	MLO	BASEMENT
С	120/208	225	MLO	BASEMENT
D	120/208	225	MLO	BASEMENT
Е	120/208	400	MLO	BASEMENT
G	120/208	225	MLO	LOWER LEVEL
Н	120/208	225	MLO	LOWER LEVEL
1	120/208	225	MLO	LOWER LEVEL
J	120/208	225	MLO	LOWER LEVEL
K	120/208	225	MLO	LOWER LEVEL
M	120/208	225	MLO	LOWER LEVEL
Р	120/208	225	MLO	LOWER LEVEL
L	120/208	225	MLO	UPPER LEVEL
U	120/208	225	MLO	UPPER LEVEL
Υ	120/208	225	MLO	UPPER LEVEL
R	120/208	400	MLO	UPPER LEVEL
2DP09	120/208	150	MLO	UPPER LEVEL
2PP09	120/208	150	MLO	UPPER LEVEL
2BB09	120/208	150	MLO	UPPER LEVEL
2IG09	120/208	150	MLO	UPPER LEVEL

### **Narrative** | Electrical Narrative

Contractor to remove all existing equipment from existing walls and ceilings being removed under this contract. All existing conduit and wiring feeding electrical equipment to be removed or terminated as described below:

- A. Conduit feeding equipment from slab to be cut off below slab and abandoned with hole in slab being patched back to match existing.
- B. Conduit feeding equipment from above dropped ceiling to be disconnected and removed back to source.
- C. Maintain the integrity of all existing through circuitry where existing electrical equipment has been removed from the midpoint of the circuit.

Provide adequate protection to persons and property. Execute work in such a manner as to avoid interference with required operations and use of or passage to and from adjoining buildings and facilities. Refer to architectural and mechanical narratives and drawings for additional information on required demolition work.

120/208V Panel 'A' located in the mechanical room to be replaced with new 400 amp MLO panel. The existing feeders for this panel were replaced in 2009 and will be reused. Refeed all loads currently served from this panel. Pull new conductors for all existing equipment to be refed.

Remaining general use loads to be fed from the existing 120/208V 150 amp panel 'BL09'. Install new breakers in spare spaces as needed.

Feeds for the existing coolers and freezer to be refed from panel 'X2'

Provide new 120/208V 480 amp MCB panel in the electrical room to feed the Food Service Robot Storage, Charging and Maintenance area. Panel to be fed from available 3 pole breaker located in panel 'MDP09'.

Panel '1FC09' will be relocated in new electrical room located on level 1. Panel '1FC09' to feed the Café and Vestibule Area. Replace

existing 120/208V 150 amp MLO panel'1L09' with a new 120/208V 400 amp MCB panel to serve the Shipping Lockers area. New panel '1L09' to be fed from spare 400 amp 3 pole breaker located in distribution panel 'MDP09' located in the electrical room on level 1. Pull new conductors for all existing equipment to be refed.

Panel '1C09' feeds area not included in this scope and will need to remain in service for the duration of the project.

Panel '1FC12' a 120/208V 225 amp 2 section panel located in storage room 105D to be relocated to new electrical room on level 1.

Level 2 is currently served by a 120/208V 800 amp distribution panel '2LDP09' located in electrical room 231. '2LDP09' feeds power panels '2L09A', '2L09B', and '2EL09' also located in electrical room 231. All panels in electrical room 231 to be relocated to new electrical room on level 2.

Panel '2L09A' to be utilized to serve the new Student Organization and Meeting room areas on level 2. Panel '2L09B' to be utilized to serve the Student Life Suite and Offices area. A new 120/208V 400 amp MLO panel to be installed in the new electrical room on level 2. The new panel is to be fed from distribution panel '2LDP09'. The new panel will serve the Testing center and Surveillance Office.

The rooftop mechanical equipment is served from a 120/208V 400 amp MLO panel 'PENT09' that is located in the penthouse on the roof. This panel is to be utilized to serve the new mechanical equipment that is replacing equipment that is past expected lifespan.

120/208V loads shall be fed utilizing the existing 3000 amp switchboard "MDP09". Panelboards shall be specified for sequence phase connection to evenly balance electrical loads on each phase. Bus bars shall be copper. Loads up to 400 amperes shall utilize panelboards. Loads 400 to 1200 amperes shall utilize distribution boards. Loads above 1200 amperes shall utilize switchboards. Circuit breakers to be molded case, bolt-on type. Panelboards shall have 15 percent spare capacity and 20 percent spare breakers. A detailed short-circuit analysis shall be prepared during the design phase, and all overcurrent devices shall be coordinated so that downstream devices will trip to clear any fault. The anticipated available fault current at the transformer secondary is 65,000 amps. Provide 3PH, 4W surge protection devices at the main service switchboard and panelboards that are connected to the secondaries of 208Y/120V transformers.

The emergency standby engine generator system shall be replaced. The system shall be completely automatic for unattended operation for the duration of any loss of normal utility power. System shall be capable of reaching operating range within 10 seconds of initial start signal. Unit shall be a continuous standby 300 KW/ KVA capacity. Unit to meet the requirements of NFPA 110. Unit shall be equipped for outdoor installation. Unit to be equipped with a sound attenuated housing. Starting batteries to be heavy-duty lead acid type with an automatic battery charger. A double wall diesel belly tank shall be provided with 24 hours of run capacity. The system shall be provided with a generator control panel and a remote annunciator (remote annunciator to be housed in the building command center). New 120/208V transfer switches shall be provided as indicated on the drawings. Switches to be double throw actuated by a single operator. Interlocked molded case circuit breakers, contactors or transfer devices with dual solenoid operators are not acceptable. Provide an automatic exerciser to operate the unit for a period of 30 minutes every 168 hours. The emergency system shall supply power to all life safety and equipment loads in the facility including the elevators.



### Narrative | Electrical Narrative

Lighting systems for the facility shall consist of the following:

- Conference Rooms/Meeting Rooms: 2 x 4 direct/indirect, LED lay-in luminaires and dimmable LED can lights at the teaching board.
- Office: 2 x 4 direct/indirect, LED lay-in luminaire.
- Corridor, Lounge, and Bathroom: 2 x 4 direct/indirect, LED lay-in luminaires, LED can lights, and LED sconces.
- Storage, Mechanical, Electrical: 1 x 4 LED strip light.

Light fixtures shall be controlled via switches in combination with occupancy sensors.

Provide additional general use duplex outlets where required.

Provide GFI duplex convenience outlets above counters in toilets.

Provide quadraplex outlets to serve computers at office desk locations and testing center computer stations.

IT cabling shall be contractor furnished/contractor installed. All data outlets will be new and shall be located at computer stations in the classrooms and the office desk and testing center computer stations. Wireless access points shall be provided throughout the facility as required. Service for the new facility shall originate from a telecommunication manhole located on campus routed to the new building via 3-4" conduits. All work shall be done per the latest UTK IT standards.

Provide starters as shown on mechanical drawings and scheduled on electrical drawings. Division 23 to furnish and install line- and low-voltage control wiring including conduit, conductors, and terminations for same. Starters used on 208V systems shall have

individual 208/120V control transformer with two cartridge fuses in the primary and one in the secondary. Starters used inside to have NEMA-1 enclosures, starters used in damp locations or exposed to weather to have NEMA-3R enclosures.

Conductors and cables utilized for interior building installation shall be copper. Temperature rating of conductors shall be 90 degrees C. Insulation shall be THHN, THHW, or XHHW, 600 volt rated, 90 degrees C. Branch circuit wiring for all dimming systems will be required, one neutral per circuit, no common neutrals allowed. Raceways used in building interiors shall be rigid metal. The minimum conduit size shall be 1/2". The entire system of raceways and equipment shall be grounded in accordance with Article 250 of the NEC. Separate green grounding conductors shall be installed in all feeder and branch circuits in accordance with Table 250-95 of the NEC.

Furnish and install a complete campus standard fire alarm system as described herein and as shown on the drawings, to be wired, connected and left in first class operating condition. Include sufficient control panels, annunciators, manual stations, automatic fire detectors, smoke detectors, alarm indicating appliances, wiring, terminations, electrical boxes, conduit and all other necessary material for a complete operating system. All occupied spaces shall have a visible alarm indicating appliance. Provide duct smoke detectors in supply and return ducts of all air-handling units. The system shall be capable of on-site programming to accommodate system expansion and facilities changes in operation. The system shall be capable of recalling alarms and trouble conditions in chronological order for the purpose of recreating an event history.

All devices shall be addressable, shall be supervised, and the capability of being disabled or enabled individually. The system shall have one-way voice communication and tone generating capabilities with three prerecorded digitized voice messages, one for alarm, one for testing, and a standard evacuation message. The system alarm operation subsequent to the alarm activation of any manual station, automatic detection device or sprinkler flow shall be as follows:

- All audible alarm indicating appliances shall notify occupants with the prerecorded evacuation message.
- All visual alarm indicating appliances shall flash continuously until the system is reset.
- Release all doors held open by door control devices.
- Recall all elevators.
- Activate mechanical control schemes in accordance with NFPA 90.
- Notify monitoring station.

Provide electrical connection to projection screens and all A/V equipment per manufacturer's recommendations.

Provide electrical connection motorized door openers.

Provide electrical connection to parking equipment and car chargers as required.

### Narrative | Plumbing Narrative

#### **GENERAL**

This narrative encompasses the plumbing scope of work for the renovation of the existing Presidential Court Building for UTK.

Narrative is based on a renovation of a 3 story building with a program area of 77,000 sf.

Reference UT Mechanical Design Criteria v4 2018 and UTK Facilities Services 2020 Design Guidelines and Preferences Feb 2020 for additional information and requirements.

#### **EXISTING PLUMBING SYSTEMS**

#### **Existing Sanitary Waste and Vent Systems**

The sanitary service for the building routes and exits the building to the southeast side of the building. There are (2) sanitary exits from the building. (1) is an 8" sanitary pipe that routes below the Storage B125 room on the service level, the other is a 6" sanitary lint that exists the southeast end of the mechanical room on the service level. These sanitary lines will need to be utilized for new FD connections and sanitary connections from the levels above. The existing sanitary and ventilation system on the 1st level and mechanical room on the service level will be reused, but the remainder of the sanitary and ventilation system on the service level and the 2nd level will be removed in its entirety to make way for new connections required.

There are (2) separate grease trap stations serving the existing Presidential Court. A large system at Frances Street will remain. See Utility plan for location. The small grease system on the north end of the building adjacent to Caledonia Avenue is to be removed.

#### **Existing Storm Water Systems**

The existing building utilizes an interior RWL system with no overflow. The existing rainwater drains will be reused and the rain water leaders will be removed for replacement and new routing.

#### **Existing Domestic Cold Water Systems**

One 3" water services is provided in the north wall of the mechanical room on the service level. The existing backflow preventer should be reused. The existing CW risers should be reused, after abatement.

#### **Existing Domestic Hot Water Systems**

The existing domestic hot water for the facility is being provided from a steam to hot water heat exchanger. This shall be removed and replaced, as it has reached the end of its useful life.

#### **PLUMBING SYSTEMS**

#### **Sanitary Waste and Vent Systems**

The building will be provided with a complete sanitary waste and vent system utilizing Schedule 40 PVC pipe and fittings. Sanitary waste and vent piping shall be routed to all plumbing fixtures and connected to the existing sanitary mains below the service level. Floor or wall-mounted cleanouts will be provided every 50' within the buildings. Heavy-duty couplings shall be installed, including at the base of all waste stacks. Sanitary waste mains shall be routed to the existing sanitary waste system. Exposed piping and p-traps subject to freezing shall be heat traced. Waste stacks, vent stacks, and stack vents shall be routed vertically from the top floor to the bottom floor to drain and vent bathroom groups common to each floor

Connect new grease sanitary waste from the café on the 1st level to the grease trap on Frances Street.

#### **Storm Water Systems**

The buildings will be provided with a complete new storm water system utilizing Schedule 40 PVC pipe and fittings. The existing (9) roof drains will be reused and (9) new overflow drains will be added next to the existing roof drains. The roof drains will be collected and piped to exterior storm mains on site. Overflow drains shall be routed to ground level and discharged to grade. Heavy-duty couplings shall be installed, including at the base of all rainwater

Elevator pits shall be provided with duplex 50 GPM pumps with oil smart systems. The elevator sump pump discharge shall drain to storage barrels.

#### **Domestic Cold Water Systems**

Provide an additional redundant backflow preventers per UT requirements (two total RPBPs) in the mechanical room on the service level. Domestic cold water will be distributed throughout the buildings and connected to the existing CW riser to service the plumbing fixtures and equipment as required.

Piping shall consist of insulated Type "L" copper. Shutoff valves will be provided to isolate all fixtures and equipment. Shock absorbers will be provided at all flush valve fixtures and all other quick closing valves. All cold water lines shall be insulated per UT Mechanical Design Criteria. Non freeze wall hydrants spaced 150 ft. apart shall be provided around the perimeter of the buildings. Exposed piping subject to freezing shall be heat traced.

#### **Domestic Hot Water Systems**

The domestic hot water for the facility will be provided from new steam to hot water heat exchanger.

#### **Existing Domestic Hot Water Systems**

The existing domestic hot water for the facility is being provided from a steam to hot water heat exchanger. This shall be removed and replaced, as it has reached the end of its useful life.

#### **PLUMBING FIXTURES**

The existing plumbing fixtures shall be removed. All new plumbing fixtures shall be low flow type. Water closets in residences shall be floor mounted tank type. Water closets in public spaces shall be flush valve type. Refer to architectural and campus standards for specific plumbing fixture types and manufacturers.

#### **EXISTING NATURAL GAS SYSTEM**

The existing gas system consisting of a 2-1/2" 2lb gas main entering the building on the north end of the building at the service level. The gas main routes to the internal stair/elevator riser and routes up to the 2nd level. The existing gas on the 2nd level serving the old kitchen shall be removed. The existing 2-1/2" 2lb gas main up to the roof shall remain and service the new rooftop air handling units. See the mechanical narrative for btu requirements.



### **Narrative** | Fire Protection Narrative

#### FIRE PROTECTION SYSTEMS

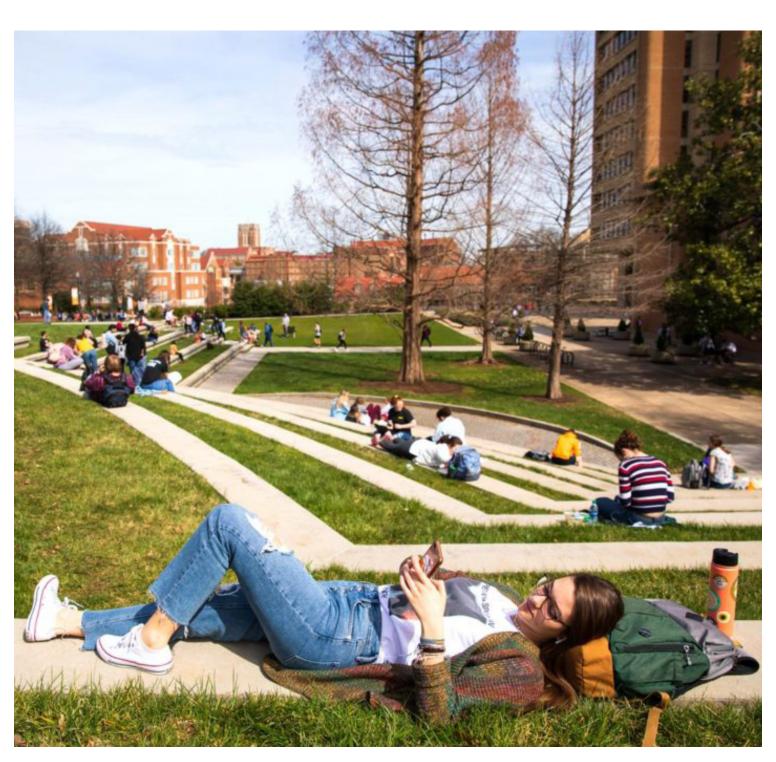
The existing building is 3 floors. Currently, there is not an existing sprinkler system in the existing building. Based on building height and use, there will be a new automatic sprinkler & standpipe system boosted by fire pump to comply with national and local codes. City water will be used to supply the building fire protection system.

The building will be fully covered by an automatic sprinkler system. All systems to be hydraulically designed per NFPA 13 and insurance underwriter requirements. System to be complete with Siamese connection, alarms, and all related appurtenances. Pipe shall be Schedule 40. Entire system to meet all requirements of NFPA 13 and 14.

A fire pump and jockey pump will be provided in a new 15'x15' fire pump room on the service level. A new post indicator valve will be required on the property by Frances Street. The size of the fire pump selected will meet the full fire demand of the building sprinkler and standpipe systems per NFPA 13 and 14. Fire pump shall be equipped with service entrance rated soft start/ATS with minimum 100 KAIC rating. Fire pump will be located in a dedicated 2 hour fire rated reinforced masonry construction fire pump room. The sprinkler heads will be white, semi-recessed, quick response type for all finished areas. Sprinklers in monolithic ceilings shall be concealed with factory-painted white cover plate or white recessed sidewalls depending on architecture. Utilize brass upright heads for all areas without finished ceilings.

Class I standpipes shall be provided. Each egress stair shall have a NFPA 14 compliant fire protection standpipe, one of which shall extend to the roof with a 2 ½" fire hose connection. All standpipes shall be interconnected. Each standpipe shall have a 2 ½" fire hose connection and capable of providing 100 PSI at each stair landing. Additional fire department valves shall be located to provide access within 200' travel distance. Pressure reducing fire department valves and automatic sprinkler zone control valves shall be provided as required by system pressures. Each floor shall be equipped with sprinkler zone control assembly with flow switch, tamper switch, inspector test station. A 3" sprinkler drain will be provided at each stairwell equipped with pressure reducing valves. All flow and tamper switches shall be connected to the building fire alarm system.

Fire extinguishers of ABC type with UL rating 4A:80B; C in aluminum cabinets shall be located throughout the facility. Locate so that a maximum of 75 feet of travel to any space will be provided. Wall-hung fire extinguishers equal to ABC type with UL rating of 4A:80B: C shall be located in all mechanical spaces.



#### **PROCESS**

The following cost analysis is based on the program data and conceptual floor plans for the Design Program.

#### **Assumptions**

- Current market conditions with inflated pricing and anticipated escalation through mid-point of construction
- Three to five qualified Subcontractors competitively bidding on the majority of bid packages for this project
- Competitively bid contract
- August 1, 2023 as start of construction
- August 1, 2024 as substantial completion of construction

#### **Exclusions**

- Professional fees, testing, moving expense for Owner's account
- FF&E
- Owner provided items
- Hazardous material removal and abatement, unless noted in estimate
- Construction contingencies
- Site work in Courtyard

#### Clarifications

#### Mechanical

- All work during normal business hours
- Mechanical includes all scope and systems described within Mechanical Narrative
- Central heating and cooling systems will utilize the existing chilled water and steam service
- Existing gas service and piping to connect to new equipment as required will be used
- Metering and monitoring of chilled water, heating hot water, domestic hot water, gas and interface to electrical meter are included by ATC

- Existing walk-in coolers and freezers are existing to remain
- Mechanical demolition includes cut, cap and make safe; assumed remove and dispose is included by Division 2
- One existing large grease trap station at Frances Street is existing to remain; the smaller grease trap at north, adjacent to Caledonia Avenue, is to be removed

#### Electrical

- Service and distribution as per Electrical Narrative, excludes primary feeds and services provided by utility company
- Temporary power and lighting is included
- All lighting is priced as LED type and includes fixture, material and installation
- Lighting control to consist of an array of switches, sensors, daylight harvesting and a centralized lighting control system
- Common electrical is included
- Voice data/structural cabling is included
- Intercommunication conduit system is included
- Fire alarm system in conduit is included
- Mechanical and electrical connections are included
- VFD's will be supplied by Mechanical Contractor and will be installed by Electrical Contractor

#### Plumbing

 Primary and secondary storm drain systems are included; existing primary roof drains are existing to remain

#### Fire Protection

• Fire protection includes a new fire protection service, fire pump, wet sprinkler system and standpipe system

### **Design Program**

### **OVERALL COST SUMMARY**

	SF	Pre	es Crt Renov 65,840	<u>c</u>	ost/SF
A10 - FOUNDATIONS & SUBSTRUCTURE		\$	47,550	\$	0.72
B10 - SUPERSTRUCTURE		\$	193,675	\$	2.94
B20 - EXTERIOR WALLS / WINDOWS		\$	766,938	\$	11.65
B30 - ROOFING		\$	664,052	\$	10.09
C10 - INTERIOR WALLS / DOORS		\$	918,062	\$	13.94
C20 - STAIRCASE		\$	53,250	\$	0.81
C30 - INTERIOR FINISHES		\$	792,262	\$	12.03
C1030 - SPECIALTIES		\$	448,800	\$	6.82
D10 - CONVEYING SYSTEMS		\$	300,000	\$	4.56
D20 - PLUMBING		\$	1,181,828	\$	17.95
D30 - HVAC		\$	3,015,472	\$	45.80
D40 - FIRE PROTECTION		\$	391,748	\$	5.95
D50 - ELECTRICAL		\$	3,844,398	\$	58.39
E10 - EQUIPMENT		\$	-	\$	-
F20 - BUILDING ELEMENTS DEMOLITION		\$	797,326	\$	12.11
G10 - SITE PREPARATION		\$	30,860	\$	0.47
G20 - SITE IMPROVEMENTS		\$	112,027	\$	1.70
G40 - SITE UTLITIES		\$	190,000	\$	2.89
SUB	TOTALS	\$	13,748,248	\$	208.81
General Conditions Overhead & profit	15%	\$	2,062,237	\$	31.32
Design Contingency	15%	\$	2,371,573	\$	36.02
Phasing/After Hours work Factor	0.0%	\$	-	\$	-
Escalation	14.09%	\$	2,561,852	\$	38.91
	TOTALS	\$	20,743,909	\$	315.07



## **Design Program**

#### **DETAILED COST ANALYSIS**

۱10	- FOUNDATIONS & SUBSTRUCTURE	<b>Pres Crt Renov</b>	Unit	Unit Cost	Pres Crt Renov
					\$47,550
	FOUNDATIONS				\$0
					\$0
	New Elevator Pits - 2 Elevators	1	EA	\$23,000.00	\$23,000
					\$0
					\$0
	SLAB ON GRADE				\$0
					\$0
	New on Grade Ramp - Including Foundations	80	SF	\$35.00	\$2,800
	Foundations for Ramp	50	LF	\$300.00	\$15,000
	New Railing @ Ramp at Dock	45	LF	\$150.00	\$6,750
					\$0

SUPERSTRUCTURE	<b>Pres Crt Renov</b>	Unit	Unit Cost	Pres Crt Renov
				\$193,675
FLOOR STRUCTRE				\$0
				\$0
New Covered Area @ Dock - Allowance	1,200	SF	\$60.00	\$72,000
Infill Floor W/ LWT Concrete on Mtl Deck & LT GA Stud Knee walls @ Ground Floor	3,692	SF	\$25.00	\$92,300
LWT Concrete on Mtl Deck on Beams @ Stair A Opening	181	SF	\$55.00	\$9,955
LWT Concrete on Insulation @ Freezers on Lev 2	371	SF	\$20.00	\$7,420
				\$0
			\$0.00	\$0
ROOF STRUCTURE				\$0
				\$0
Sawcut Deck and New Metal Roof Deck for Elevator Overun	160	SF	\$75.00	\$12,000
				\$0

EXTERIOR WALLS / WINDOWS	<b>Pres Crt Renov</b>	Unit	Unit Cost	Pres Crt Renov
				\$766,938
Exterior Wall Systems				\$0
				\$0
Demo				\$0
New Walls for Elevator Overun	144	SF	\$50.00	\$7,200
Demo Single Exterior Door	6	EA	\$120.00	\$720
Demo Pair of Exterior Doors	4	EA	\$200.00	\$800
Demo Exterior Masonry Wall	917	SF	\$2.00	\$1,834
Demo Exterior Glazing	3,366	SF	\$10.00	\$33,660
Clean Exterior Brick	13,175	SF	\$1.50	\$19,763
Tuckpoint Exist Brick - 25% of the area	3,429	SF	\$23.00	\$78,861
Clean/Patch/Repair PC Panels	3,715	SF	\$5.00	\$18,575
Clean/Patch & Repair Columns	1,413	SF	\$5.00	\$7,065
Dumpster Allowance	1	LS	\$2,000.00	\$2,000
				\$0
New Work				\$0
Infill Masonry Openings	70	SF	\$50.00	\$3,500
3' x 7'-10" HM/Glass Single Door & Frame - incl Hardware	6	EA	\$4,800.00	\$28,800
6' x 7'-10" HM/Glass Pair Door & Frame - incl Hardware	4	EA	\$8,000.00	\$32,000
4' x 7' HM Single Door & Frame - incl Hardware	1	EA	\$3,500.00	\$3,500
Aluminum/Glass Storefront System	466	SF	\$110.00	\$51,260
Aluminum/Glass Windows @ 2nd flr	3,166	SF	\$150.00	\$474,900
5' Sliding Cafe Pick-up Window	1	EA	\$2,500.00	\$2,500
				\$0
				\$0

- ROOFING	<b>Pres Crt Renov</b>	Unit	Unit Cost	Pres Crt Renov
				\$664,052
				\$0
Demo Existing Roof & Edge	29,232	SF	\$2.75	\$80,388
New Roof W/ Insulation	29,232	SF	\$18.00	\$526,176
New Roof for Elevator Overun	160	SF	\$25.00	\$4,000
Repair & Patch PC Coping	260	LF	\$10.00	\$2,600
New Metal Coping/Roof Edge W/ Blocking	700	LF	\$34.00	\$23,800
Roof/Wall Flashing	260	LF	\$50.00	\$13,000
Demo Mech Roof Covers	3,168	SF	\$3.50	\$11,088
Dumpster Allowance	1	LS	\$3,000.00	\$3,000
				\$0

C10 - INTERIOR WALLS / DOORS	<b>Pres Crt Renov</b>	Unit	Unit Cost	Pres Crt Renov
				\$918,062
WALLS				\$0
5/8" Gyp on 7/8" Furring	10,264	SF	\$7.00	\$71,848
5/8" Gyp 2-Sides- 1HR Wall on 3-5/8" Metal Studs W/SA	3,657	SF	\$14.30	\$52,295
5/8" Gyp 1 side on 3-5/8" Metal Studs W/SA	2,359	SF	\$10.00	\$23,590
5/8" Gyp 2 side on 3-5/8" Metal Studs W/SA	19,579	SF	\$13.35	\$261,380
6" CMU	547	SF	\$12.00	\$6,564
8" CMU	11,287	SF	\$15.00	\$169,305
				\$0
DOORS				\$0
3'- x 7' HM Single Door & Frame Incl Hardware	19	EA	\$2,600.00	\$49,400
3'- x 7'-10" HM Single Door & Frame Incl Hardware	4	EA	\$4,800.00	\$19,200
6'- x 7' HM Pair Door & Frame Incl Hardware	4	EA	\$4,300.00	\$17,200
6'- x 7'-10" HM Pair Door & Frame Incl Hardware	4	EA	\$8,000.00	\$32,000
3'- x 7' Wood Single Door & HM Frame Incl Hardware	60	EA	\$2,500.00	\$150,000
6'- x 7' Wood Pair Door & HM Frame Incl Hardware	8	EA	\$4,100.00	\$32,800
3' x 7" Door Lite	28	EA	\$1,160.00	\$32,480
				\$0
				\$0
				\$0

C20 - STAIRCASE	<b>Pres Crt Renov</b>	Unit	Unit Cost	Pres Crt Renov
				\$53,250
				\$0
New 4' W Metal Stairs and Landing - 26' H	1	EA	\$42,000.00	\$42,000
New 5' W Tread & Risers on Existing Stairs	75	EA	\$150.00	\$11,250
				\$0

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## **Design Program**

### DETAILED COST ANALYSIS

INTERIOR FINISHES	Pres Crt Renov	Unit	Unit Cost	Pres Crt R
				\$792,2
C3010 - Wall Finishes				
Paint Gyp Walls	58,600	SF	\$1.10	\$6
Paint CMU Walls	14,726	SF	\$1.25	\$1
Epoxy Paint @ Toilets in BSMT	2,433	SF	\$1.50	Ç
Ceramic Tile	3,307	SF	\$20.00	\$6
C3020 -FLOOR				
Carpet	456	SF	\$4.00	Ş
Carpet tile Offices	5,790	SF	\$5.00	\$2
Carpet tile @ Proctor Areas	7,056	SF	\$5.50	\$3
Carpet tile @ Mtg Rms	6,951	SF	\$6.00	\$4
Ceramic Tile	1,921	SF	\$18.00	\$3
2Nd Flr Circulation Flooring	3,601	SF	\$8.25	\$2
New Terrazzo Floor	4,110	SF	\$20.00	\$8
Refinish Exist Terrazzo Floor & Base	3,319	SF	\$2.50	Ç
Cafe Flooring - LVT	1,417	SF	\$10.00	\$1
Lounge Flooring - LVT	3,467	SF	\$10.00	\$3
Prep & Patch and Seal Exist Conc	6,222	SF	\$1.25	Ç
Sealed Concrete	1,543	SF	\$1.00	Ç
No Finish	1,016	SF		
Floor Prep Allowance	30,659	SF	\$1.00	\$3
1				
C3020 - BASE				
Rubber Base	5,696	LF	\$4.00	\$2
Ceramic Tile Base	562	LF	\$18.00	\$1
Terrazzo Base	264	LF	\$65.00	\$1
C3030 - Ceilings				
2' x 2' ACT	39,008	SF	\$6.00	\$23
Exposed Ceiling- Painted	466	SF	\$1.30	
Open to above- No Ceiling	2,698	SF	\$0.00	

0 - SPECIALTIES	Pres Crt Renov	Unit	Unit Cost	Pres Crt Re
				\$448,80
MISC SPECIALTIES				
10' H Operable/Folding Partition	1,520	SF	\$170.00	\$25
Projection Screen - Allowance	5	EA	\$3,000.00	\$1!
Marker Board - Allowance	305	SF	\$30.00	\$9
Solid Surface Tops on Wood Base Cabinet	15	LF	\$600.00	\$
Wall Cabinets	15	LF	\$400.00	\$
2" Countertop @ Conference Room	13	LF	\$180.00	\$
Reception Counters	23	LF	\$1,000.00	\$2
Check in Counter @ Procter Center	31	LF	\$1,200.00	\$3
TOILET & JC ACCESSORIES				
2' W Toilet Room Vanity Top	77	LF	\$230.00	\$1
Toilet Accessories	1	LS	\$70,000.00	\$7
JC Accessories	2	EA	\$500.00	\$



D10 - CONVEYING SYSTEMS	<b>Pres Crt Renov</b>	Unit	Unit Cost	Pres Crt Renov
				\$300,000
				\$0
New Elevators, 26' of Travel	2	EA	\$150,000.00	\$300,000
				\$0
				\$0

20 - PLUMBING	Pres Crt Reno	/ Unit	Unit Cost	Pres Crt Renov
				\$1,181,828
				\$0
Equipment	65,840	SF	\$1.35	\$88,884
Fixtures	65,840	SF	\$1.75	\$115,220
Water Piping	65,840	SF	\$4.75	\$312,740
Sanitary & Vent Piping	65,840	SF	\$5.50	\$362,120
Storm Piping	65,840	SF	\$3.50	\$230,440
Gas Piping	65,840	SF	\$0.65	\$42,796
Rigging	65,840	SF	\$0.15	\$9,876
Coordination	65,840	SF	\$0.20	\$13,168
Cut Cap Make Safe Existing	65,840	SF	\$0.10	\$6,584
				\$0

D30 - HVAC	Pres Crt Renov	Unit	Unit Cost	Pres Crt Renov
				\$3,015,472
				\$0
Equipment	65,840	SF	\$16.75	\$1,102,820
Sheet Metal	65,840	SF	\$12.50	\$823,000
Piping	65,840	SF	\$6.25	\$411,500
Insulation	65,840	SF	\$3.75	\$246,900
Controls	65,840	SF	\$5.00	\$329,200
Start Up	65,840	SF	\$0.35	\$23,044
Testing Adjusting & Balancing	65,840	SF	\$0.75	\$49,380
Rigging	65,840	SF	\$0.20	\$13,168
Coordination	65,840	SF	\$0.15	\$9,876
Cut Cap Make Safe Existing	65,840	SF	\$0.10	\$6,584
				\$0

D40 - FIRE PROTECTION	Pres Crt Renov	Unit	Unit Cost	Pres Crt Renov
				\$391,748
				\$0
Fire Pump	65,840	SF	\$1.10	\$72,424
Fire Protection Specialties	65,840	SF	\$0.25	\$16,460
Wet Sprinkler System Building Coverage	65,840	SF	\$3.25	\$213,980
Standpipe System	65,840	SF	\$1.15	\$75,716
Coordination	65,840	SF	\$0.20	\$13,168
				\$0

### **Design Program**

#### **DETAILED COST ANALYSIS**

50 - ELECTRICAL	<b>Pres Crt Renov</b>	Unit	Unit Cost	Pres Crt Renov
				\$3,844,398
				\$0
Electrical Demo:	65,840	SF	\$0.99	\$65,182
Electrical Power & Distribution:	65,840	SF	\$9.15	\$602,436
Equipment Conn & Power Distribution:	65,840	SF	\$4.25	\$279,820
Branch Circuitry:	65,840	SF	\$3.50	\$230,440
Emergency / Essential Power:	65,840	SF	\$8.00	\$526,720
Temporary Lighting & Power :	65,840	SF	\$0.64	\$42,138
Lighting Systems:	65,840	SF	\$17.10	\$1,125,864
Special Systems:	65,840	SF	\$14.76	\$971,798
				\$0
				\$0

E10	D - EQUIPMENT	<b>Pres Crt Renov</b>	Unit	Unit Cost	Pres Crt Renov
					\$0
					\$0
	Equipment				\$0
					\$0
					\$0

BUILDING ELEMENTS DEMOLITION	Pres Crt Re	nov	Unit	Unit Cost	Pres Crt Reno
					\$797,326
Demolition					
Demo Gypsum Board Walls	4,0	76	SF	\$1.70	\$6,9
Demo CMU Walls	38,9	80	SF	\$2.60	\$101,3
Demo for New Door Opening		3	EA	\$2,100.00	\$6,3
Demo Single Doors		67	EA	\$80.00	\$5,3
Demo Pair Doors		12	EA	\$150.00	\$1,8
Demo CT Floor	3,	939	SF	\$1.50	\$5,9
Demo VCT Floor		925	SF	\$0.90	\$8
Demo Flooring	26,	742	SF	\$1.25	\$33,4
Demo Wall Finish	1	248	SF	\$2.00	\$2,4
Demo ACT Ceiling	37,	292	SF	\$0.70	\$26,1
Demo Toilet Room - Large - Accessories		6	EA	\$1,500.00	\$9,0
Demo Millwork		93	LF	\$20.00	\$1,8
Demo Lockers		72	EA	\$30.00	\$2,2
Demo Dock Stairs		1	EA	\$650.00	\$(
Demo Main Stairs - 1 Flight		1	EA	\$3,500.00	\$3,5
Demo Main Stairs - 3 Flight		1	EA	\$8,500.00	\$8,
Demo Stairs & Railings		66	LF	\$25.00	\$1,0
Demo Elevator		1	EA	\$7,500.00	\$7,!
ACM Removal Allowance		1	LS	\$500,000.00	\$500,0
Misc Demo Allowance		1	LS	\$20,000.00	\$20,
Misc Demo for MEP - Haul out etc - Allowance		1	LS	\$10,000.00	\$10,0
Dumpster Allowance		1	LS	\$42,000.00	\$42,

10 - SITE PREPARATION	<b>Pres Crt Renov</b>	Unit	Unit Cost	Pres Crt Renov
				\$30,860
				\$0
Demo Curb & Gutter	181	LF	\$10.00	\$1,810
Demo of Sidewalks	1,240	SF	\$4.00	\$4,960
Demo Stairs & Railings	1,240	SF	\$6.00	\$7,440
Demo Existing Retaining Wall	180	LF	\$45.00	\$8,100
Excavation/Disposal for new sidewalk	70	CY	\$65.00	\$4,550
Demo Grease Receptors	2	EA	\$2,000.00	\$4,000
			\$0.00	\$0
				\$0

G20	- SITE IMPROVEMENTS	Pres Crt Renov	Unit	Unit Cost	Pres Crt Renov
П					\$112,027
					\$0
	Depressed Curb & Gutter	170	LF	\$30.00	\$5,100
	Concrete Curb & Gutter	11	LF	\$33.00	\$363
	Concrete Sidewalk	1,488	SF	\$9.00	\$13,392
	New Retaining Wall	175	LF	\$425.00	\$74,375
	New 10' W Stairs W Railings	180	LF	\$80.00	\$14,400
	Seed & Topsoil	1,353	SF	\$3.25	\$4,397
				\$0.00	\$0
					\$0

G40	- SITE UTLITIES	Pres Crt Renov	Unit	Unit Cost	Pres Crt Renov
П					\$190,000
					\$0
	Domestic Water - Allowance	1	LS	\$35,000.00	\$35,000
	Fire Water - Allowance	1	LS	\$20,000.00	\$20,000
	Sanitary - Allowance	1	LS	\$50,000.00	\$50,000
	Storm - Allowance	1	LS	\$85,000.00	\$85,000
	Gas Line - Allowance (Not Required)	1	LS	\$0.00	\$0
					\$0
					\$0
					\$0

Subtotal before Markups

\$13,748,248

### **Architectural Expression**

#### **UNIVERSITY DESIGN GUIDELINES & PREFERENCES**

Refer to the "2020 Design Standards and Guidelines" for the "basis of design" standards and design preferences for new capital construction on the main University of Tennessee Knoxville (UTK) Campus.

#### **ARCHITECTURE**

The Presidential Court structure is composed of concrete columns and waffle slabs, which allow for the interior to have large, open volumes of space. At the Roof Level, the waffle slab cantilevers past the facade on all sides, creating shade for the window fenestration below (on the Second Level). In a similar manner, the second floor waffle slab is revealed above the Ground Level facade, which is inset from the Second Level facade above. The deep insets, resulting from the existing architecture, reduce visability of the building entrances and transparent openings, as they are often in shadow. Any modificiations to the exterior envelope should endeavor to create increased transparency of the entrances and into the public zones of the building.

#### **Exterior Materiality**

The exterior envelope is comprised of primarily brick veneer with exposed concrete structural elements. A detailed assessment of the exterior should be completed to determine scope of brick repair or replacement. Any brick replacement should match the existing size, color and coursing. The exposed concrete elements should be assessed for any necessary repair and/or cleaning.

The existing exterior glazing has a bronze tint that obscures visibility into the building interior. The dark color of the glass, in combination with the large overhangs, creates an opaque, less-inviting building entrance experience. The new glazing at the exterior entrances and glass wall systems is to have a high degree of clarity, balanced with performance, to allow for increased visibility into the public and collaborative spaces of the building.

#### INTERIOR DESIGN

The interior of the building should encourage a warm, welcoming, healthy and contemporary environment. Materials should be high quality, durable, recyclable and low maintenance. Where cost is a constraint, it is particularly important that durable materials are used in public and community areas that see the highest levels of use.

#### Lobby, Public Spaces and Circulation

The spaces adjacent to the main entries to the building will see the highest level of activity and use. Accent materials should be considered to create an impactful first impression; these materials should also perform well in terms of durability and acoustics. Examples of accent materials include: areas of carpet tile over polished concrete or terrazzo flooring, acoustic panels at the ceiling with integrated lighting. Interior glass partition systems should also be a consideration to allow for daylighting and increased openness, connections and community. Examples of appropriate locations for interior glass partitions are the office spaces, student lounges, meeting and conference rooms.

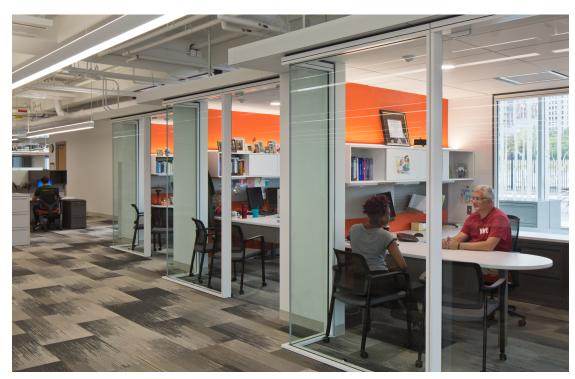
The main MEP and service spaces should be composed of extremely durable, low maintenance materials. Where possible, the concrete structure should be exposed for durability and cost considerations. low maintenance.

#### Acoustics

Special attention should be given to architectural acoustics to help control noise transference throughout the building, primarily between the Proctor Center and adjacent circulation and program spaces. Controlling noise helps to create a calm, focused environment for students taking exams. Interior sound must be managed and controlled; this applies to mechanical and plumbing equipment noise and vibration. Isolation pads and hangers should separate the mechanical equipment from the building structure. To prevent sound transmission between the adjacent program and the Proctor Center, proper separation of ductwork, fully ducted return air and appropriate wall and door construction must be considered. Proper compliance with code requirements for the minimum applicable STC rating will improve the overall acoustic environment; increasing the separation to STC 55 or 60 between community spaces and the Proctor Center will increase the isolation and improve the acoustic performance of the space.

## **Architectural Expression** | Interior Precedents - Office

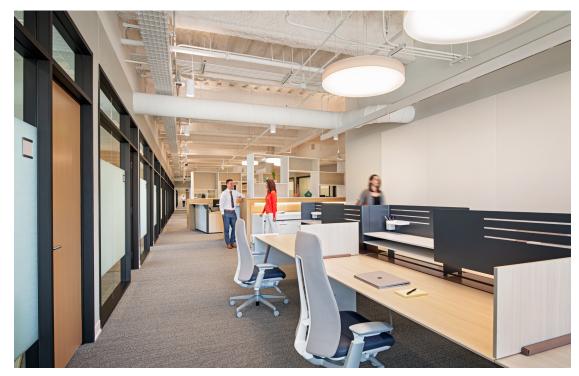
Perimeter private offices with glass walls and access to daylight.





A private office with ample access to natural light, storage and seating for visitors.

Open office space bordered by perimeter private offices.





Open office workstations with close proximity to an open collaboration zone with lounge seating and whiteboards.



### **Architectural Expression** | Interior Precedents - Conference + Meeting

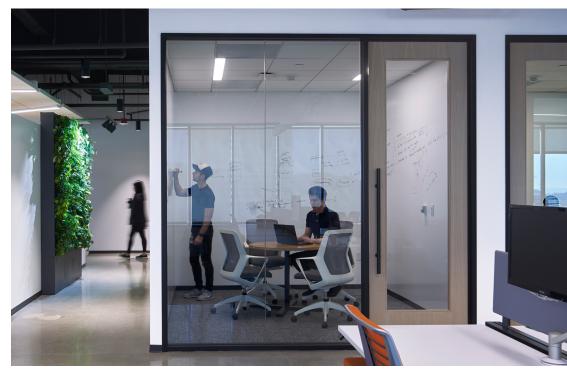
A conference space with a large group gathering table and presentation screen.

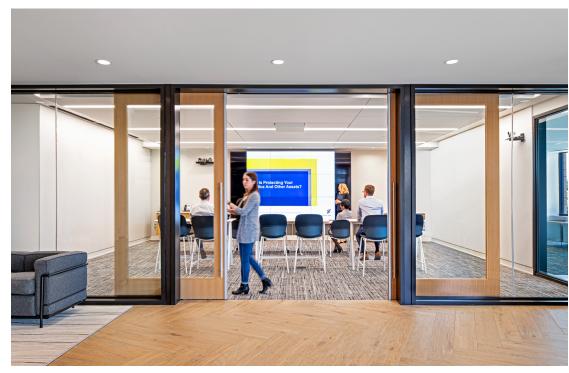




A meeting room with flexible furniture and center presentation screen.

Small group meeting or conference area with glass partition and white board walls.

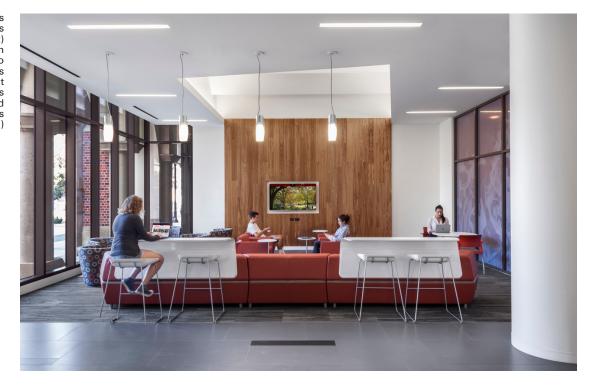




A multifunction meeting and presentation space with flexible/movable furniture.

### **Architectural Expression** | Interior Precedents - Lounge Areas

Lounge space that incorporates seating for different postures (bar-height, lounge, table-height) and group sizes. Occupants can come to socialize or study due to the variety of seating options. This space also incorporates abundant daylighting, natural materials (wood) and inviting lighting and textures (carpet, furniture textiles in warm colors and prints.)





An informal lounge area that offers seating arrangements for small groups. The access to views and daylighting encourages people to leave their private space to gather with others.

Informal lounge area that allows for private areas and space for small groups to gather.





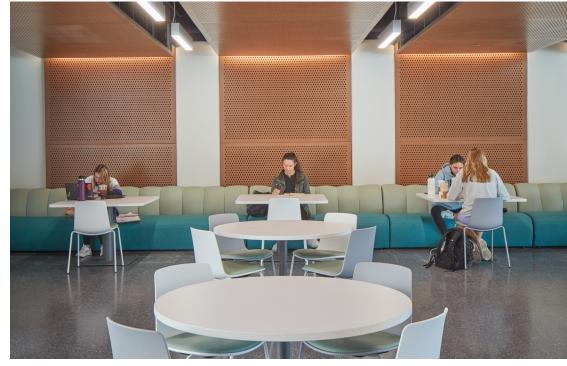
A lounge area with table and counter height work areas, movable seating, and small private meeting



### **Architectural Expression |** Interior Precedents - Cafe

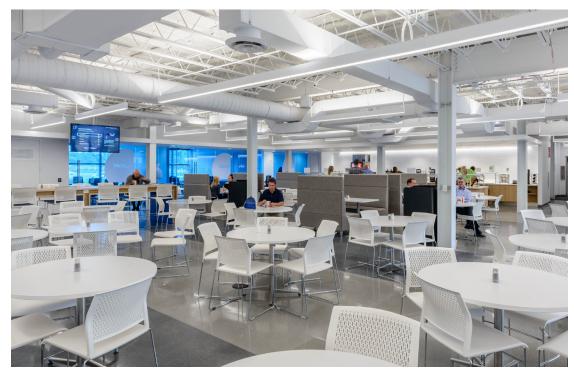
A grab-and-go cafe area with flexible and open seating, as well as ample access to light and exterior views.





Cafe dining area with flexible seating allowing for small or large group gatherings.

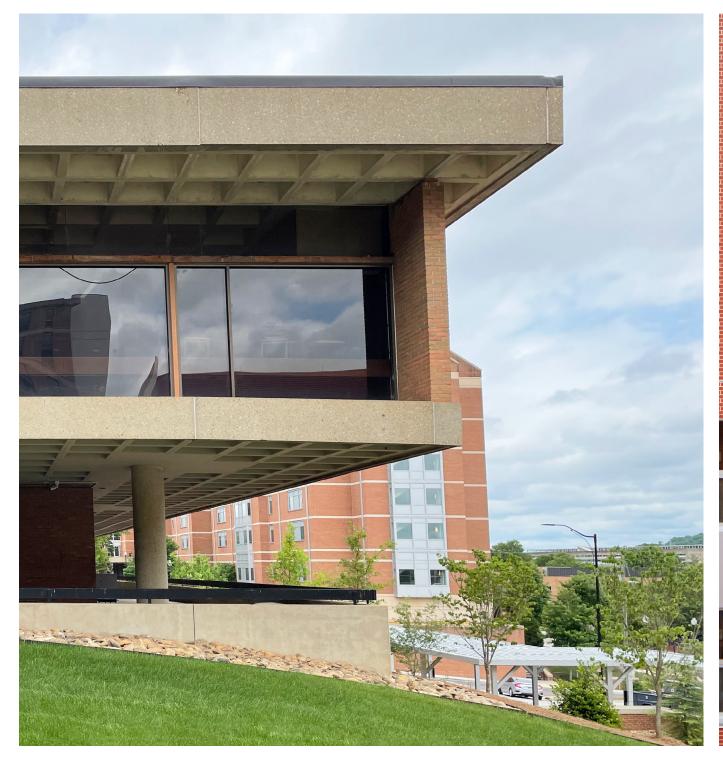
A combination of private and open, flexible cafe seating.





Cafe area with shared dining / work table, allowing for gathering and collaboration.

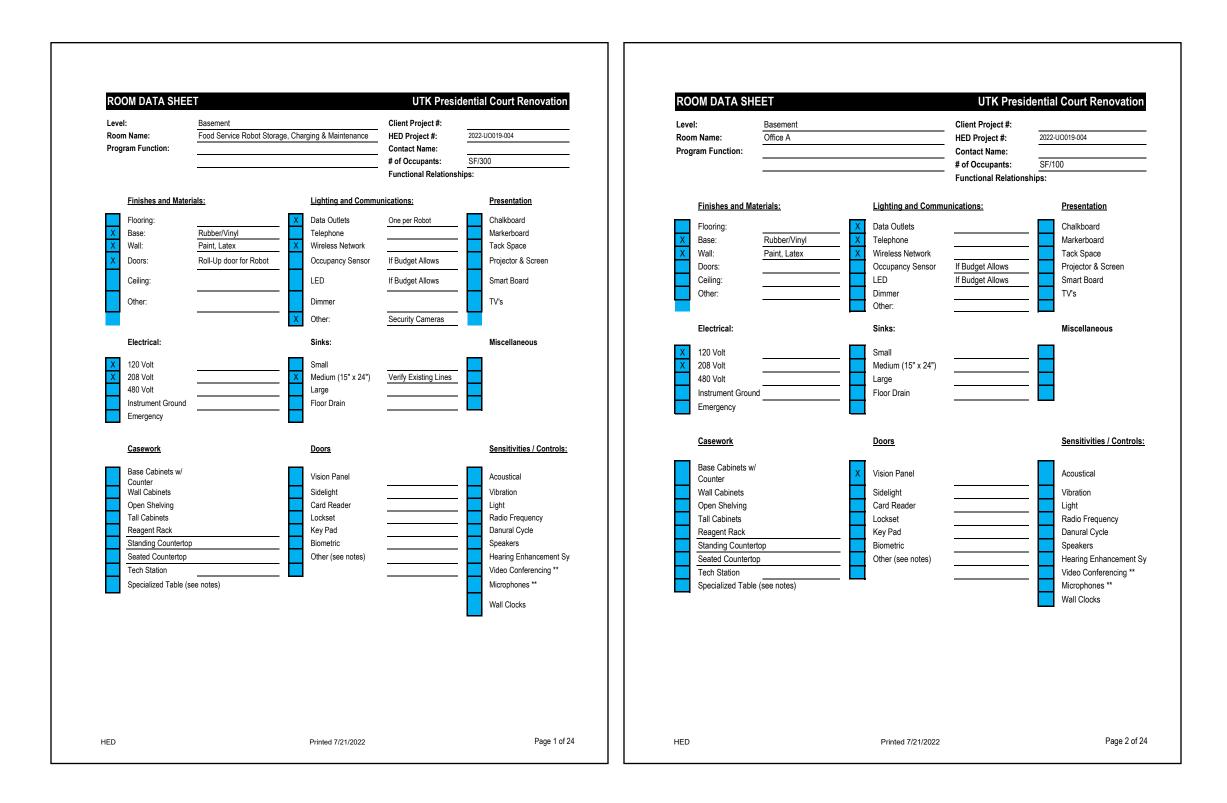
**Architectural Expression** | Exterior Precedents - Updated Glazing





The existing exterior glazing has a bronze tint that obscures visibility into the building interior. The dark color of the glass, in combination with the large overhangs, creates an opaque, less-inviting building entrance experience. The new glazing is to have a high degree of clarity, balanced with performance, to allow for visibility of the collaborative spaces within the building.



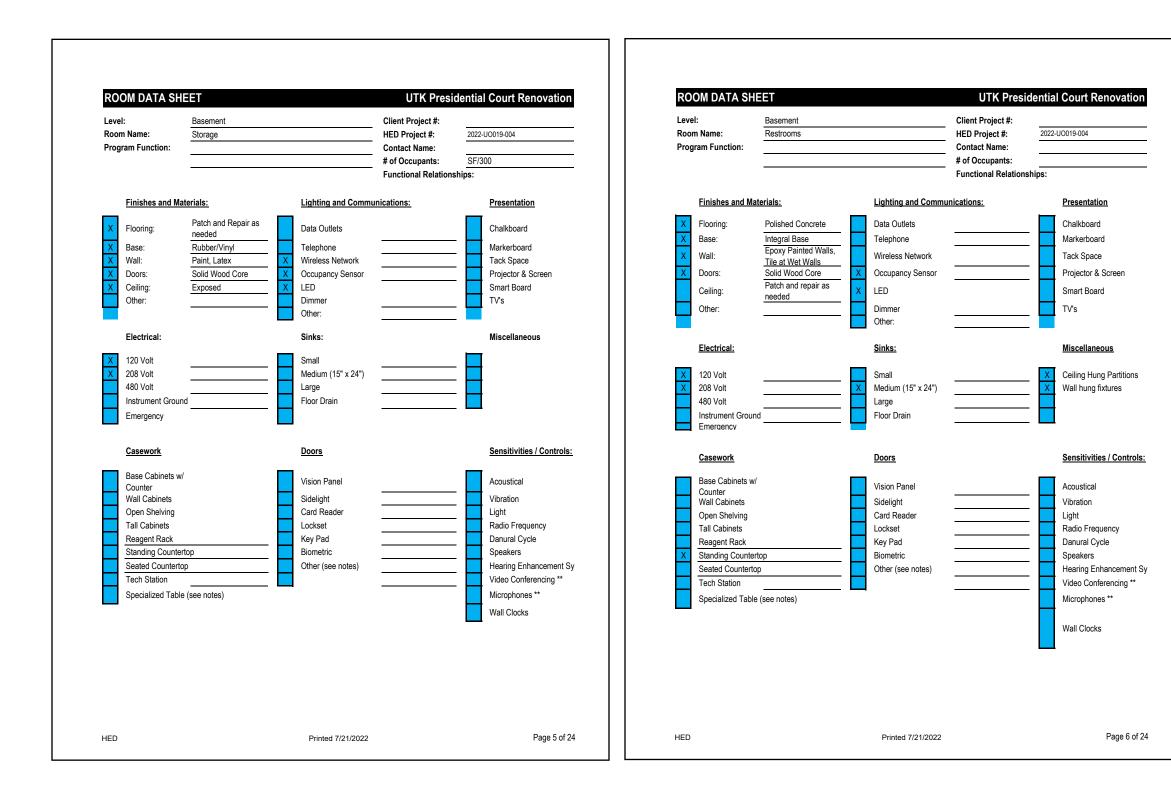


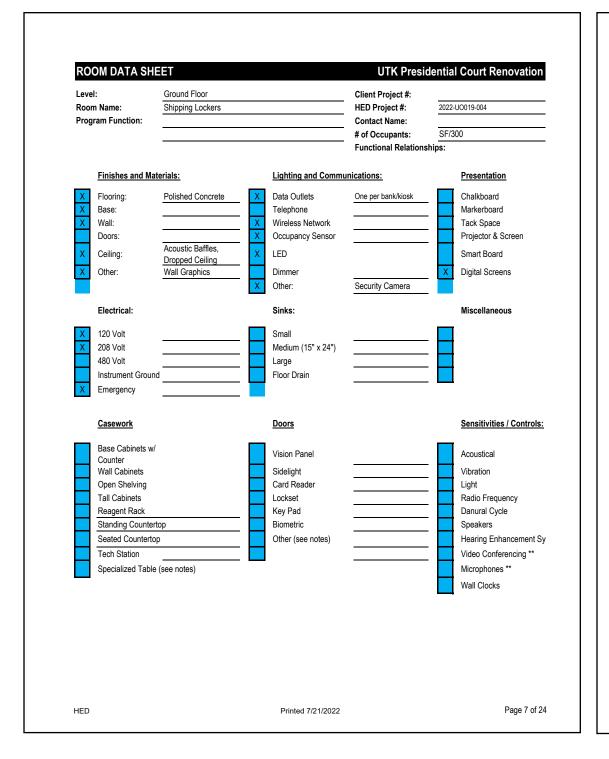
### **Room Data Sheet**

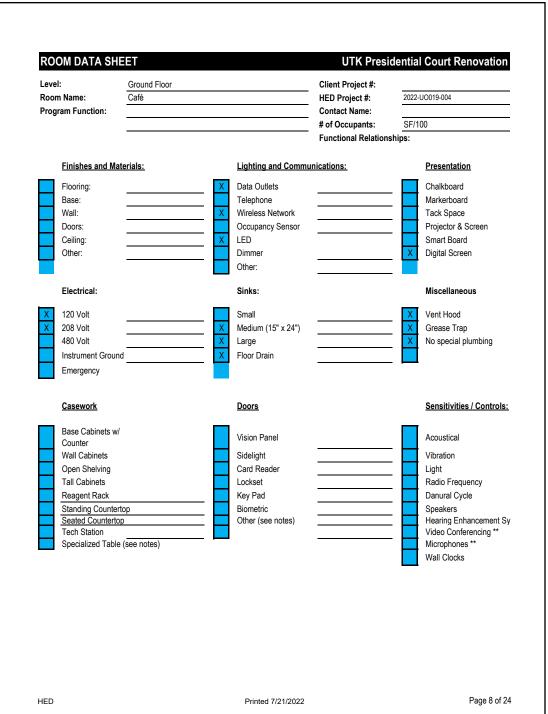
ET		UTK Presider	ntial Court Renovation	ROOM DATA SH	IEET		UTK Presi	dential Court Renovation
Basement		Client Project #:		Level:	Basement		Client Project #:	
Office B		HED Project #:	2022-UO019-004	Room Name:	Zone Maintenance		HED Project #:	2022-UO019-004
		Contact Name:		Program Function:				
							•	SF/300
		Functional Relationship	S:				Functional Relations	snips:
terials:	Lighting and Commu	nications:	Presentation	Finishes and M	aterials:	Lighting and Commu	inications:	Presentation
	X Data Outlets		Chalkboard	Flooring:		X Data Outlets		Chalkboard
Rubber/Vinyl	Telephone		Markerboard	X Base:	Rubber/Vinyl	Telephone		Markerboard
Paint, Latex	X Wireless Network		Tack Space	X Wall:	Paint, Latex	X Wireless Network		Tack Space
Solid Wood Core	Occupancy Sensor	If Budget Allows	Projector & Screen	Doors:		X Occupancy Sensor		Projector & Screen
	LED	If Budget Allows	Smart Board	Ceiling:		_ LED	If Budget Allows	Smart Board
			TV's	Other:		Dimmer		TV's
	Other:					X Other:	-	_
	Sinks:		Miscellaneous	Electrical:		Sinks:		Miscellaneous
	Small	Г		X 120 Volt		Small		
				X 208 Volt		Medium (15" x 24")	If plumbing line allow	s
	` '	<del></del>	<del>-</del>	480 Volt		Large	, ,	-
d				Instrument Grou	nd	Floor Drain		_
			_	Emergency			•	- <del></del>
	<u>Doors</u>		Sensitivities / Controls:	<u>Casework</u>		<u>Doors</u>		Sensitivities / Controls:
	V	r	<b>-</b>		ıl	Vision Panel		Acoustical
						Sidelight		- Vibration
	Sidelight		Vibration				-	Light
				Tall Cabinets		Lockset		Radio Frequency
						Key Pad		Danural Cycle
					rtop	Biometric	-	Speakers
			·		•	Other (see notes)	-	Hearing Enhancement S
μ <u></u>	Other (see notes)			Tech Station		– 📊 ` ′	-	Video Conferencing **
(see notes)			<u> </u>	Specialized Tab	e (see notes)	_	-	Microphones **
(555 110103)		ŀ	Microphones		. ,			
			Wall Clocks					Wall Clocks
			·	I				
	Office B  terials:  Rubber/Vinyl Paint, Latex	Continue   Continue	Office B  HED Project #: Contact Name: # of Occupants: Functional Relationship:  Rubber/Vinyl Paint, Latex Solid Wood Core  Data Outlets Telephone Wireless Network Occupancy Sensor LED Dimmer Other: Sinks:  Small Medium (15" x 24") Large Floor Drain  Doors  X Vision Panel Sidelight Card Reader Lockset Key Pad Biometric Other (see notes)	Contact Name:   # of Occupants:   SF/100	Office B  HED Project #: 2022/U0019-004 Contact Name: # of Occupants: SF/100 Functional Relationships:  Brials:  Lighting and Communications:  Rubber/Vinyl Telephone	Contact Name:   Zone Maintenance   Program Function:   Zone Maintenance   Zone Main	Contact Name:   Contact Name:   SF100	MED Project #: 2023-00018-0014   MED Project #: 2023-00018-0014   MED Project #: 2023-00018-0014   Medium (15° x 24°)   Medium (15° x

Page 4 of 24

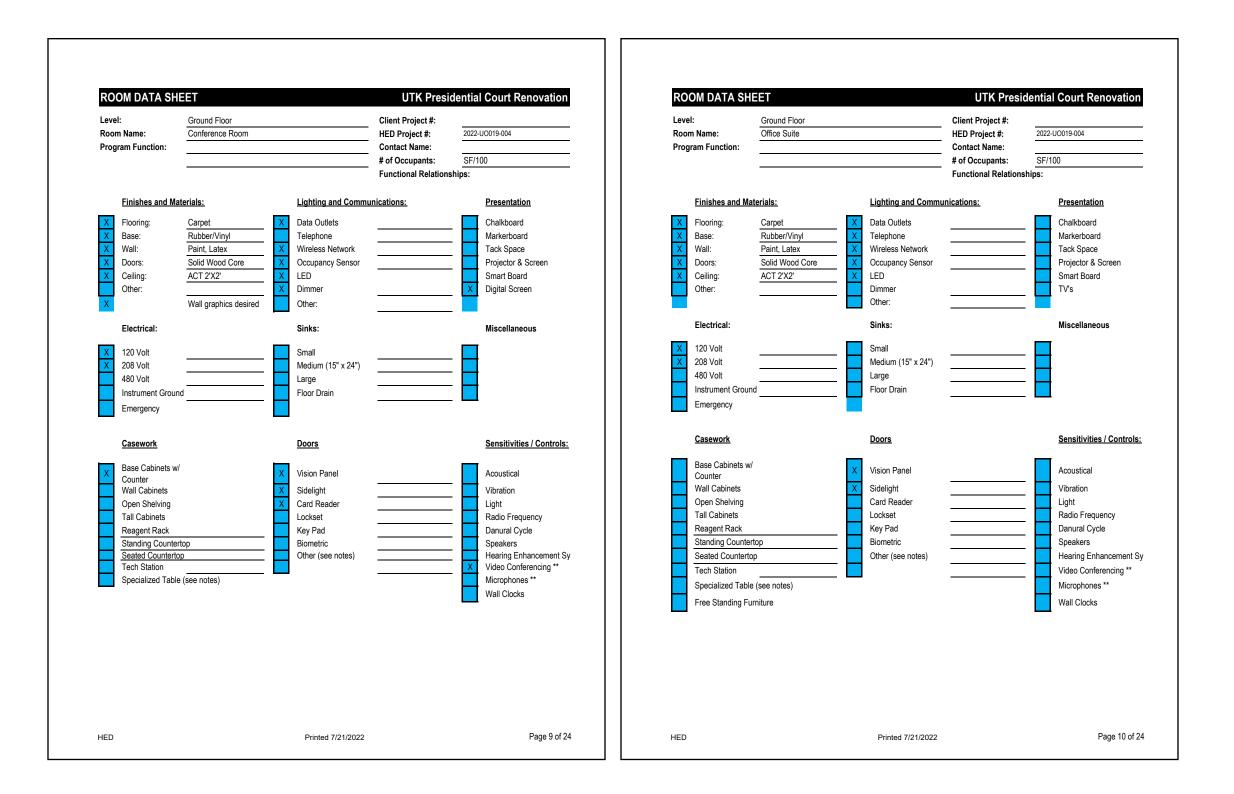


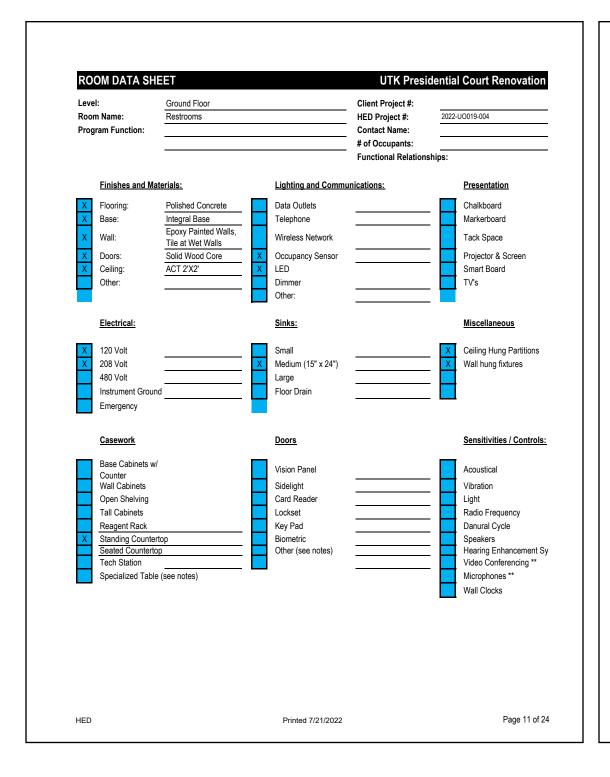


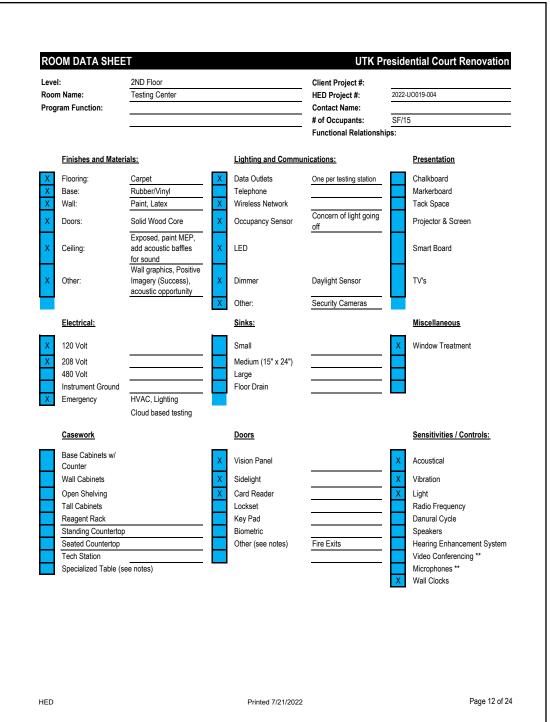




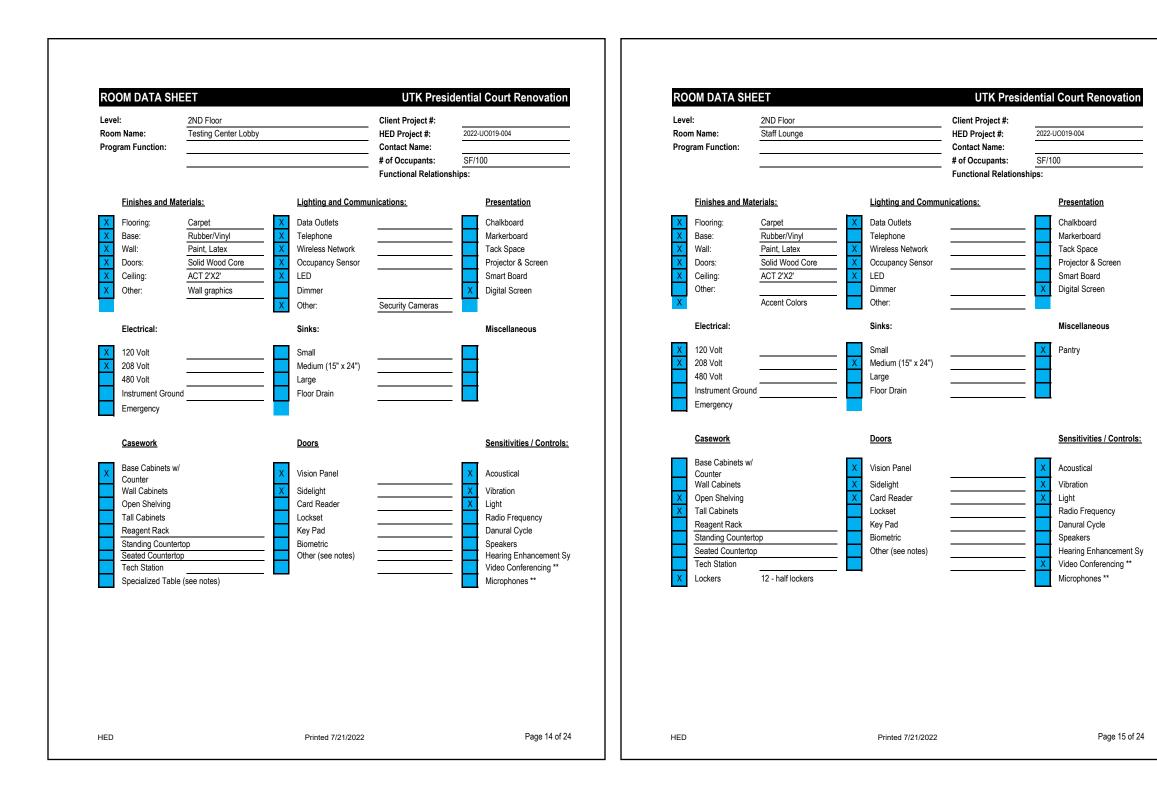








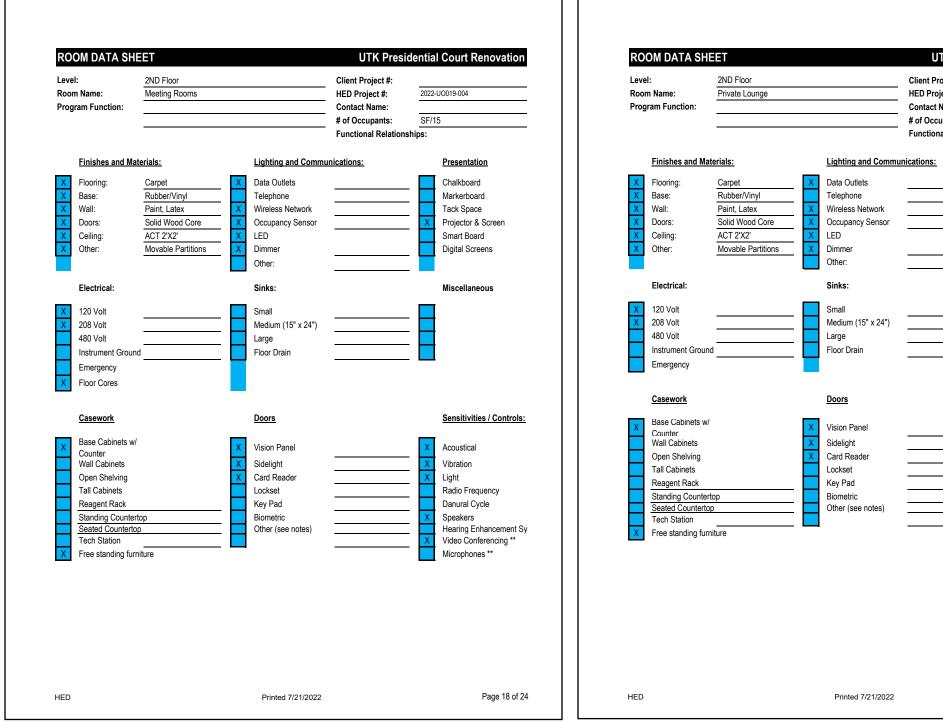


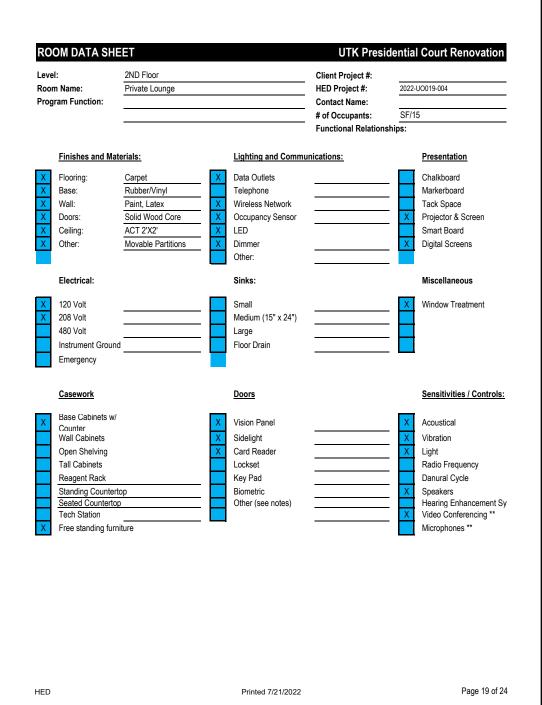


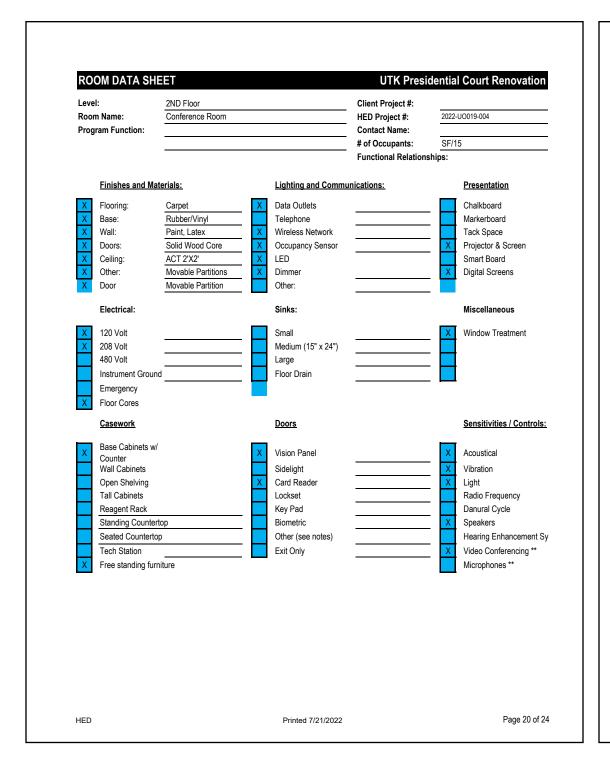
_evel:	ATA SHE	2ND Floor			Client Project #:		Court Renovation	
level. Room Nam	e:	Management Office			HED Project #:	2022-	JO019-004	
rogram F					Contact Name:			
					# of Occupants:	SF/10	00	
					Functional Relation	ships:	hips:	
Finis	hes and Mate	erials:		Lighting and Commu	nications:		<u>Presentation</u>	
X Floor	ing:	Carpet	X	Data Outlets			Chalkboard	
X Base	-	Rubber/Vinyl	Х	Telephone	-		Markerboard	
X Wall:		Paint, Latex	X	Wireless Network	-		Tack Space	
X Door	s:	Solid Wood Core	Χ	Occupancy Sensor	-		Projector & Screen	
X Ceilir		ACT 2'X2'		LED			Smart Board	
Othe	•		X	Dimmer			Digital Screen	
				Other:			<b>3</b>	
Elect	rical:			Sinks:			Miscellaneous	
X 120 \	/olt			Small		X	Window Treatment	
X 208 \				Medium (15" x 24")				
480 \				Large	-	_		
	iment Ground			Floor Drain	-	_		
	gency			Tion Blain		_ 💻		
				_				
Case	work			<u>Doors</u>			Sensitivities / Controls:	
	Cabinets w/		X	Vision Panel		X	Acoustical	
Coun				Cidaliabi		X	Vibration	
	Cabinets		X	Sidelight	-	_		
	Shelving		X	Card Reader		Х	Light	
I all C	Cabinets			Lockset	-	-	Radio Frequency	
	ent Rack			Key Pad		_	Danural Cycle	
Reag	· 0 · ·			Biometric			Speakers	
Reag Stand	ding Counterton			Other (see notes)				
Reag Stand Seate	ed Countertop			Other (see notes)		_	Hearing Enhancement Sy Video Conferencing **	
Reag Stand Seate Tech	ed Countertop Station	)		Other (see notes)			Video Conferencing **	
Reag Stand Seate Tech	ed Countertop	)		Other (see notes)		_		
Reag Stand Seate Tech	ed Countertop Station	)		Other (see notes)		_	Video Conferencing **	
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Reag Stand Seate Tech	ed Countertop Station	)		Other (see notes)			Video Conferencing **	
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Reag Stand Seate Tech	ed Countertop Station	)		Other (see notes)  Printed 7/21/2022			Video Conferencing **	

Level Roon	DM DATA SHE  : n Name: ram Function:	2ND Floor Surveillance Office		Client Project #: HED Project #: Contact Name:	dential Court Renovation		
riogi	am runction.				# of Occupants:	SF/1	00
					Functional Relation	ships:	
	Finishes and Mate	erials:		Lighting and Commu	nications:		<u>Presentation</u>
X	Flooring:	Carpet	X	Data Outlets	Raceway at counter height		Chalkboard
X	Base:	Rubber/Vinyl	X	Telephone			Markerboard
X	Wall:	Paint, Latex	X	Wireless Network			Tack Space
X	Doors:	Solid Wood Core	Χ	Occupancy Sensor			Projector & Screen
X	Ceiling:	ACT 2'X2'	Χ	LED			Smart Board
	Other:		X	Dimmer Other:			Digital Screen
	Electrical:			Sinks:			Miscellaneous
Χ	120 Volt	Raceway at counter		Small			
Y	208 Volt	height		Medium (15" x 24")	-	-	
	480 Volt			Large	-	-	
	Instrument Ground			Floor Drain	-	_	
Χ	Emergency			Tioor Brain		_	
	<u>Casework</u>			<u>Doors</u>			Sensitivities / Controls
	Base Cabinets w/		X	Vision Panel		X	Acoustical
	Wall Cabinets		X	Sidelight	-	X	Vibration
	Open Shelving		Х	Card Reader		X	Light
	Tall Cabinets			Lockset			Radio Frequency
	Reagent Rack			Key Pad			Danural Cycle
	Standing Counterto	р		Biometric			Speakers
Χ	Seated Countertop	Wall Perimeter		Other (see notes)	<del>_</del>		Hearing Enhancement S
	Tech Station				-		Video Conferencing **
	Specialized Table (	see notes)					Microphones **



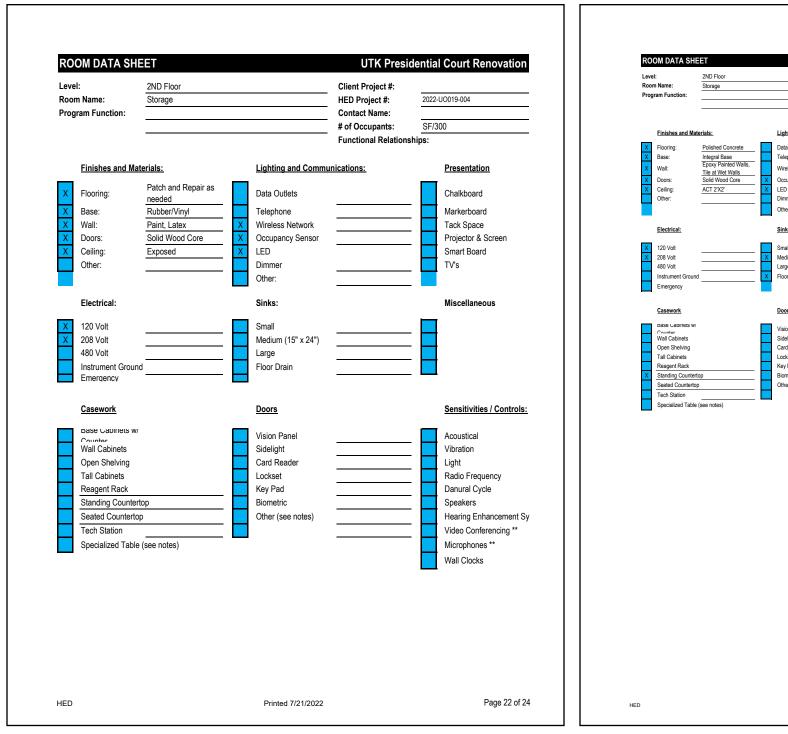


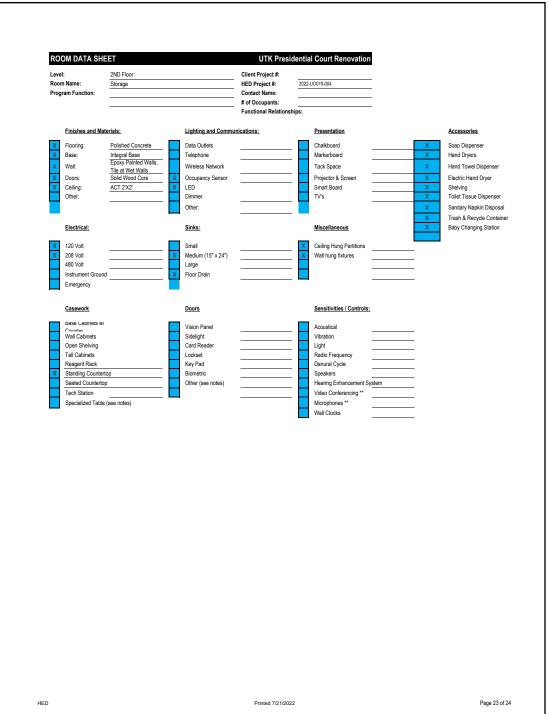




ROOM DATA S Level:	2ND Floor			idential Court Renovati
Level: Room Name:	Student Organization Lou	inge	Client Project #: HED Project #:	2022-UO019-004
Program Function:			Contact Name:	
			# of Occupants:	SF/15
			Functional Relation	ships:
Finishes and	Materials:	Lighting and Comm	unications:	<u>Presentation</u>
X Flooring:	Carpet	X Data Outlets		Chalkboard
X Base:	Rubber/Vinyl	Telephone		Markerboard
X Wall:	Paint, Latex	X Wireless Network		Tack Space
X Doors:	Solid Wood Core	X Occupancy Sensor		Projector & Screen
X Ceiling:	ACT 2'X2'	X LED		Smart Board
X Other:	Movable Partitions	X Dimmer		X Digital Screens
		Other:		
Electrical:		Sinks:		Miscellaneous
X 120 Volt		Small		X Window Treatments
X 208 Volt		Medium (15" x 24")		
480 Volt		Large		
Instrument Gro	ound	Floor Drain		
Emergency				- <del></del>
X Floor Core				
Casework		<u>Doors</u>		Sensitivities / Contr
Base Cabinets	w/	X Vision Panel		X Acoustical
Counter				_ 📥
Wall Cabinets		X Sidelight X Card Reader		X Vibration X Light
Open Shelving Tall Cabinets	,	Lockset		Radio Frequency
Reagent Rack		Key Pad		Danural Cycle
Standing Cour		Biometric	-	Speakers
Seated Counter		Other (see notes)		Hearing Enhancemen
Tech Station	люр	Other (see notes)		Video Conferencing *
X Free standing	furniture			Microphones **
_				







# **Acknowledgments**

### PROGRAMMING ADVISORY COMMITTEE

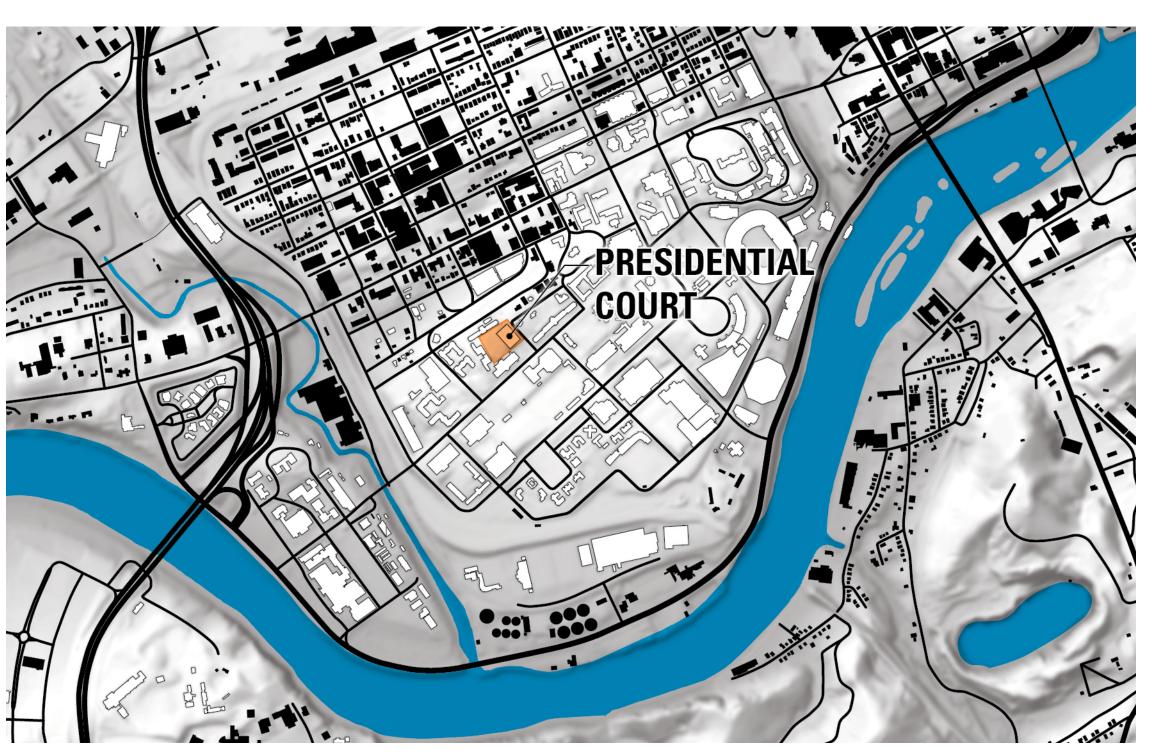
### Name

Eric Ducote, UTK, Project Manager - Design Services
Keith Paul Downen, UTK, Project Manager - Design Services
Mike Cate, UT System, Assistant Director – Project Management
Mohamed Ali, UTK, Vol Dining Director
Brian Browning, UTK, Associate Vice Chancellor
Frank Cuevas, UTK, Vice Chancellor for Student Life
Mark Alexander, UTK, Assistant Vice Chancellor for Administration & Finance
Ted Murphy, UTK, Campus Landscape Architect
Andy Powers, UTK, Director – Design Services
Steven Tamborello, Aramark - Resident District Manager

### **CONSULTANT TEAM**

Department	Name
HED (Harley Ellis Devereaux)	
Architecture + Planning	Scott Corey Jon Howard, AIA Katherine Kalant, AIA Victor Rivera, AIA Enrique Suarez, AIA Scott Whitebone, AIA
IC Thomasson Associates	
MEP	Stephanie McKenzie Michael Newton, PE
RBA Structural Engineering	
Structural	Brent Thorton, PE, SE
Fulghum MacInode & Associates	
Civil	Aaron Gray, PE
CCS International	
Cost	Clive Bransby

### **Exhibit A** | Programming Meeting Summaries

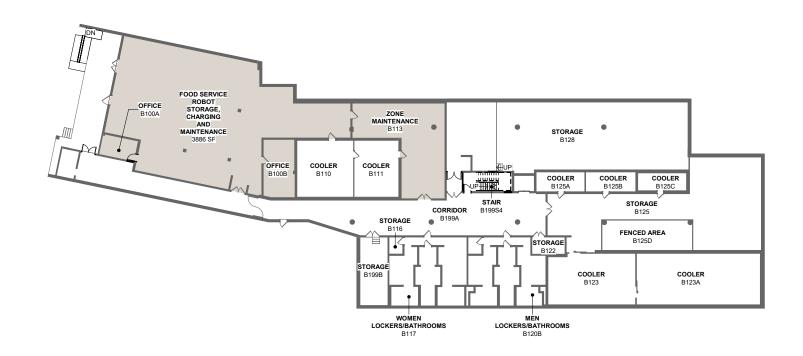


### **PROCESS**

The design team developed a participatory process to engage University stakeholders and ensure that all voices were heard. The programming process began with a review of Presidential Court existing conditions, location and relationship withing the overall campus, program requirements and main goals of the University. This review, in conjunction with benchmarking of other relevant projects, allowed the team to identify needs and opportunities that influenced the direction of the programming for the building and courtyard.

Through a series of focused programming meetings, the team evaluated different program options. The evaluation considered the organization of the programmatic needs, as well as the impact different strategies have on the financial outcome of the project. Throughout the process, the design team worked in a shoulder-to-shoulder manner with project stakeholders while confirming requirements, exploring ideas and reaching consensus to advance the UTK Presidential Court Programming Study.

### **Exhibit A** | Programming Meeting Summaries



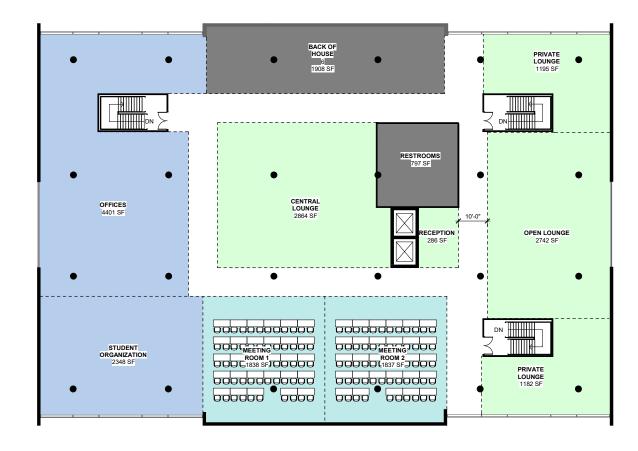
Basement Floor Plan



First Floor Plan



### **Exhibit A | Programming Meeting Summaries**



Second Floor Plan

### PROGRAMMING MEETING | 05.26.2022

### Summary

The purpose of this meeting was to seek alignment on program strategies for the three levels in the building.

#### **Basement**

Most of the spaces at the basement level were identified as existing to remain except for the bakery area. The bakery will now be the food service robot storage, charging and maintenance area.

#### **Ground Floor**

One of the main changes in the ground floor is the removal of one of the egress stairs to allow for added space for a café. The group also identified the desire to have the opportunity of an outdoor extension of the café. The remaining program on the floor consisted of office space, shipping locker area and a proctor center for 30 seats. For circulation and accessibility, the floor has been raised to a constant level and 2 elevators were added alongside one of the circulation paths between two of the building's entrances.

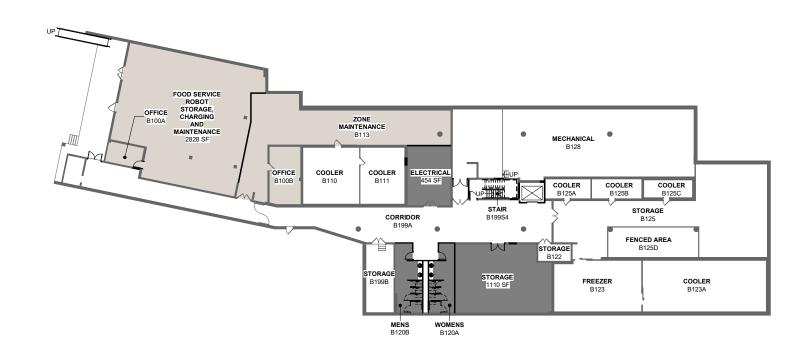
### Second Floor

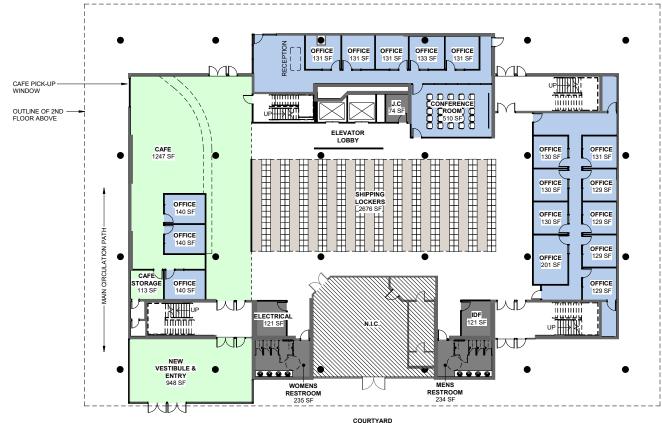
The second floor started with an elevator lobby across from an open lounge and two private lounges. Two meeting rooms with a movable partition to create a single room. The west wing had an office suite for Student Life. The central area of the floor featured a central lounge. The rest of the floor was dedicated to support spaces.

### Key takeaways

- The existing size of the restrooms are incredibly larger than what is needed. Restrooms to be reduced and gained space to be converted into building storage.
- Zone maintenance area can be expanded and separated from the food service robot area.
- Electrical room is needed on the basement level.
- New entry vestibule is wanted on the south entry of the building, facing the courtyard.
- The café area expanded to occupy most of the west wing of the building.
- Elevator lobby to be reworked around existing elevator shaft.
- Shipping lockers occupy most of the ground floor central area.
- The Proctor Center must seat 200 plus students, to be moved to the 2nd floor.
- No back of house space needed.

### **Exhibit A** | Programming Meeting Summaries





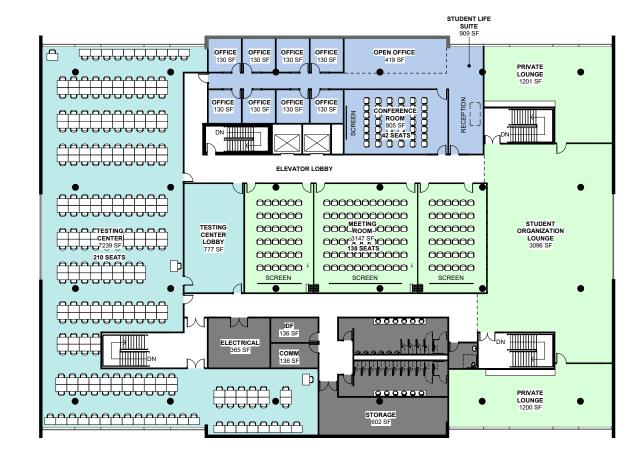
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Basement Floor Plan
First Floor Plan

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### **Exhibit A | Programming Meeting Summaries**





Second Floor Plan

### PROGRAMMING MEETING | 06.15.2022

#### **Summary**

The purpose of this meeting was to seek alignment on program strategies for the three levels in the building.

#### **Basement**

Zone Maintenance has been converted into a separate space with a single entry. Restrooms have been reduced in size and a new storage area has been added with the gained space.

#### **Ground Floor**

The removed egress stair is now found on the northwest corner of the building to allow the café to be access from the flow of students coming from Frances St. This move will also allow students to pick-up their order from the exterior of the building through a pick-up window.

#### Second Floor

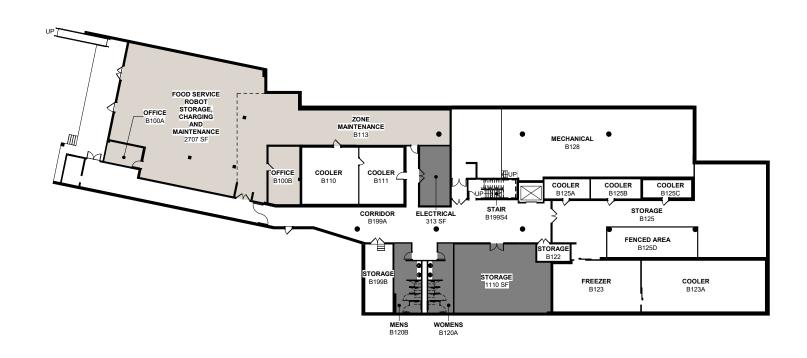
The Proctor Center now seats 210 students occupying the west wing of the second floor. The University also stated that three meeting rooms are needed for a total of 130+ seats with the ability to become a large meeting space. The Student Life office suite is now found north on the plan with a total of 8 offices and a conference room.

#### Key takeaways

- Zone Maintenance should not be separated from the Food Service Robot Storage area.
- A corridor is needed to provide access to the electrical room and cooler B111.
- The Proctor Center must accommodate 250 seats and provide a separate check-out exit for students.
- Back-of-house spaces have been reconfigured to add trash room, housekeeping, electrical room, communications room, janitor's closet and unisex bathroom.

The University of Tennessee at Knoxville | Presidential Court Renovation | 09.28.2022

### **Exhibit A** | Programming Meeting Summaries



CAFE PICK-LIP
WINDOW

GARAGE
OVERRIEAD
DOOR

OUTURE OF AND

INTERIOR

OFFICE
OF

 $\odot$ 

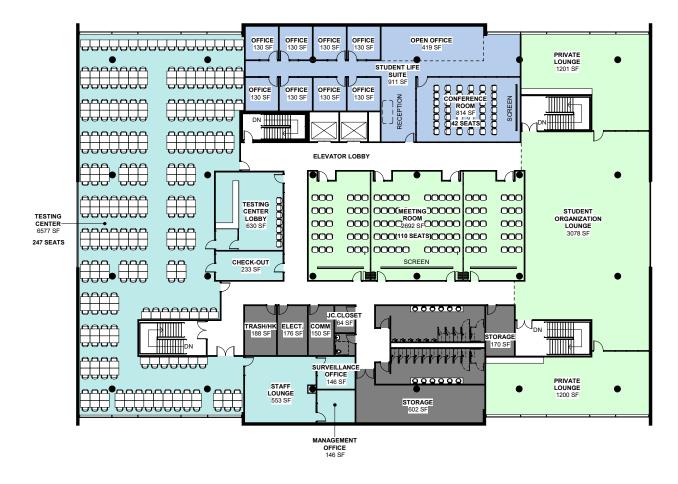
Basement Floor Plan

First Floor Plan

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### **Exhibit A** | Programming Meeting Summaries





Second Floor Plan

### PROGRAMMING MEETING | 06.23.2022

### **Summary**

The purpose of this meeting was to seek alignment on program strategies for the three levels in the building.

### **Basement**

Zone Maintenance has been incorporated back into a single space shared with the Food Service Robot Storage Area.

### **Ground Floor**

No changes from the previous meeting.

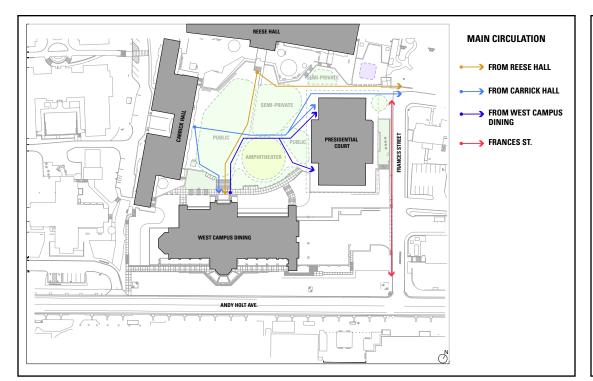
### **Second Floor**

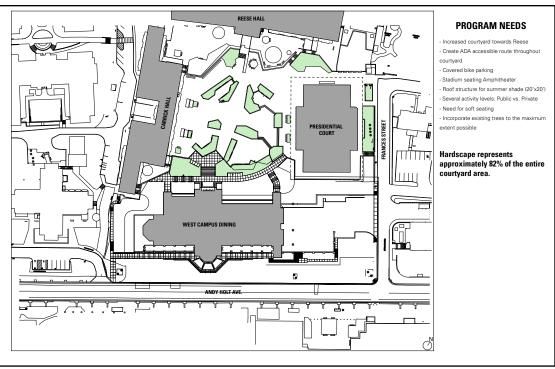
The Proctor Center now seats 247 students occupying the west wing of the second floor. The meeting rooms now seat 110 students since some of their space was dedicated to the Proctor Center.

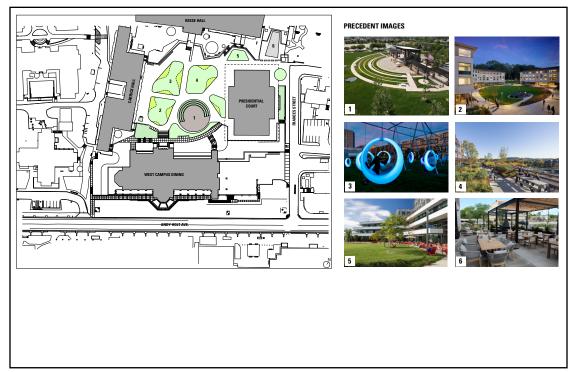
### Key takeaways

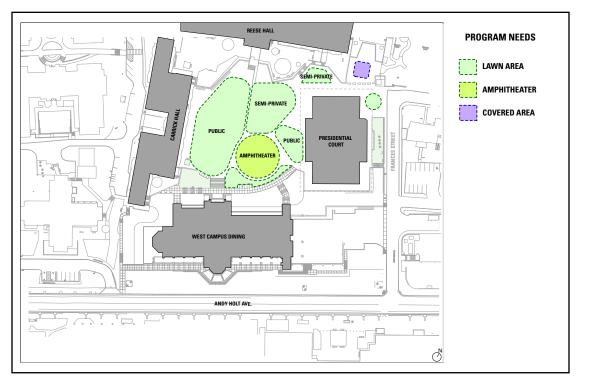
- New entry vestibule no longer needed.
- Student Life office suite to be reworked.
- Management office needed for Proctor Center

## **Exhibit A |** Programming Meeting Summaries



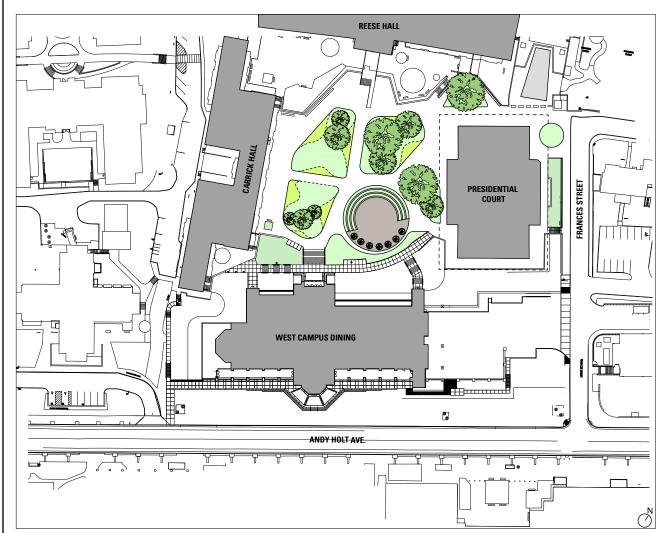








### **Exhibit A |** Programming Meeting Summaries



### **VEGETATION**

- Incorporate existing trees to the  $\ensuremath{\mathsf{maximum}}$
- extent possible
- Low maintenance plants
- No turf



xisting frees

### COURTYARD PROGRAMMING MEETING | 06.23.2022

### Summary

The purpose of this meeting was to seek alignment on program strategies for the courtyard area from the University Landscape team

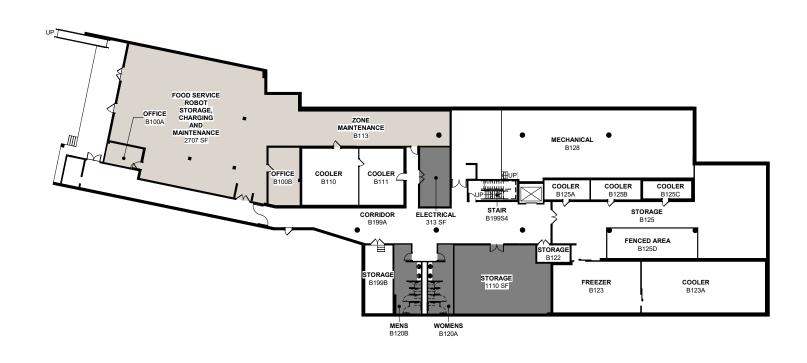
Diagrams were presented to discuss the following:

- Existing conditions
- Program Needs
- Circulation Paths
- Precedent Images
- Vegetation

### **Key Takeaways**

- Substitute glowing swing pod precedent image with pod chairs and/or hammock stations.
- Landscape team to provide tree survey on trees to remain, to be retained if design allows and those to be removed.

### **Exhibit A** | Programming Meeting Summaries





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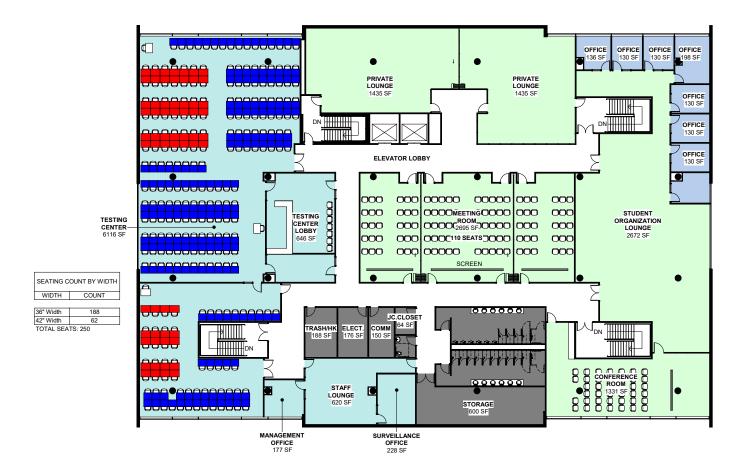
Basement Floor Plan

First Floor Plan

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### **Exhibit A** | Programming Meeting Summaries



Second Floor Plan

### PROGRAMMING MEETING | 07.06.2022

### Summary

The purpose of this meeting was to seek alignment on program strategies for the three levels in the building.

#### **Basement**

No changes from the previous meeting.

### **Ground Floor**

Café area requirements need to be confirmed by the outside vendor.

### **Second Floor**

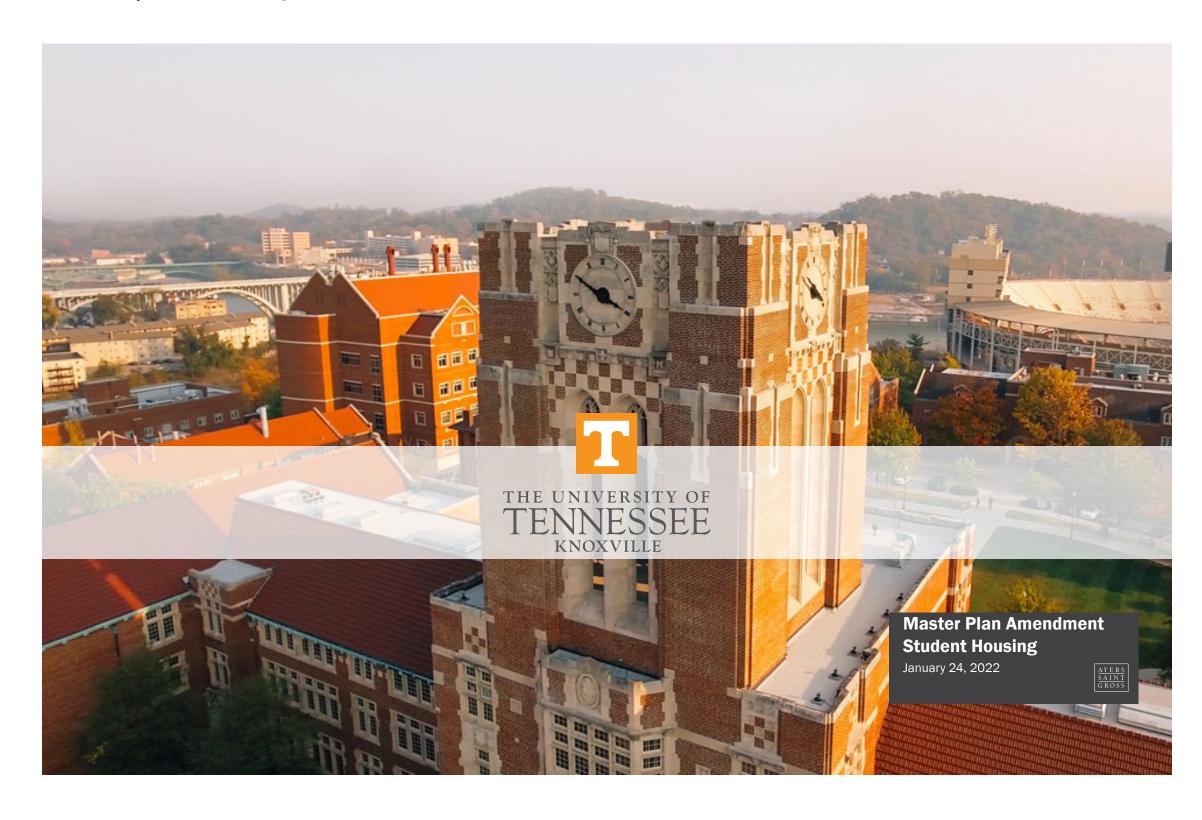
The two private lounges are now found on the north of the building with direct access from the elevator lobby. Student life offices are now part of the Student Life lounge, and a conference room has been incorporated to the south-east corner of the second floor.

### Key takeaways

- A mix of 36" and 42" testing stations are needed at the Proctor Center.
- The meeting and conference room wall next to the Student Life Lounge should be a movable partition to allow for more flexibility.

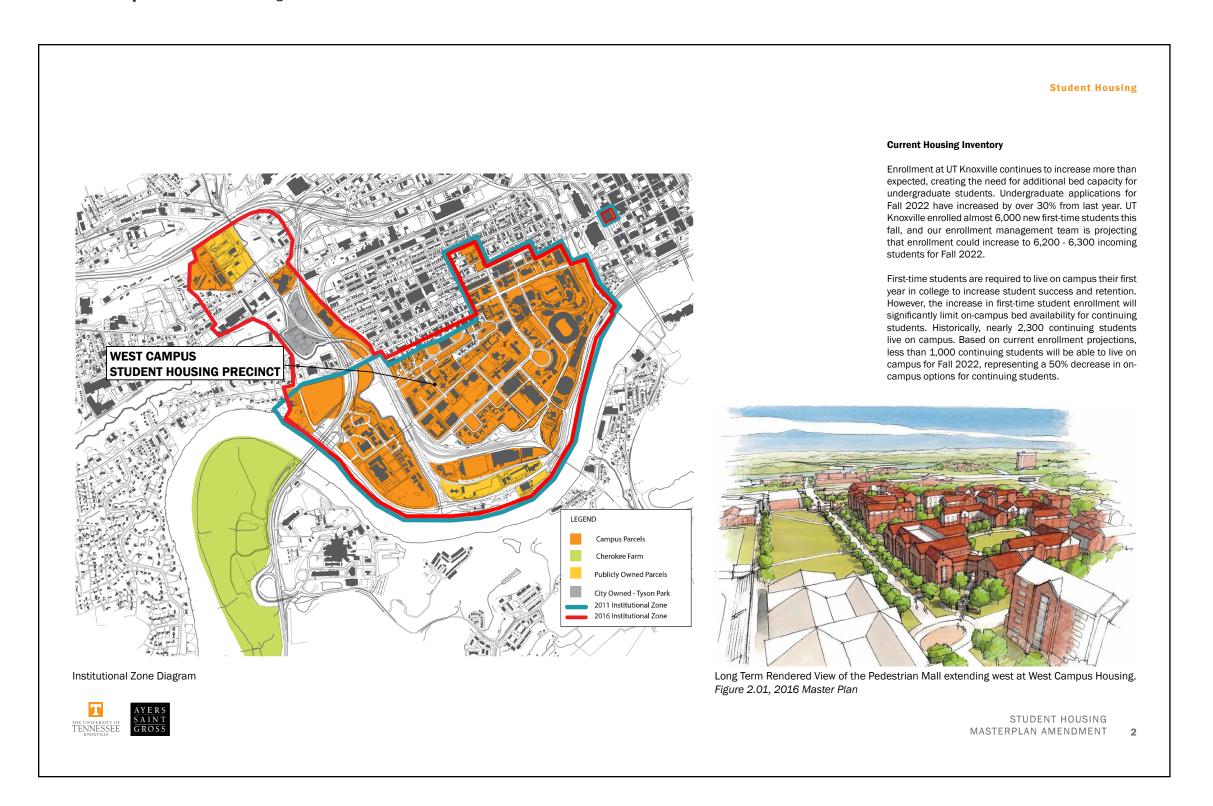
The University of Tennessee at Knoxville | Presidential Court Renovation | 09.28.2022

**Exhibit B** | Student Housing Master Plan Amendment

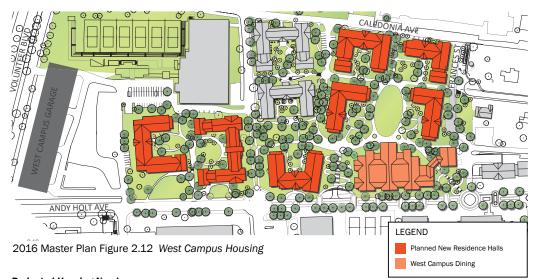




### **Exhibit B |** Student Housing Master Plan Amendment



### Exhibit B | Student Housing Master Plan Amendment



### **Projected Housing Need**

University Housing has an immediate need to construct new residence halls to help mitigate the current campus housing shortage and to take aging residence halls offline for renovation and/or replacement. The current housing achieved by converting communal spaces, such as floor lounges, into student rooms.

The 2016 Master Plan identified the West Campus Housing Redevelopment within the near-term projects. This precinct is roughly bounded by Volunteer Blvd and the west campus garage to the west, Frances Street to the east, Andy Holt Avenue to the south and Caledonia Avenue on the north. Projects identified both demolition and new construction along with the construction of a new dining hall. Two residence halls were proposed south of the tennis complex. Another building was proposed south of Robinson Hall. The full build out of this precinct was envisioned with the demolition of Carrick and Reese Halls and the Presidential Court building to result in the ability to construct 4 new residence halls north of the new Dining Facility

Much progress has been made to realize the redevelopment envisioned in the 2016 plan. The West Campus Dining hall has opened, and two residence halls have been constructed - Dogwood and Magnolia halls, in the site capacity on campus is 8,258. The current capacity was south of the tennis complex. Critical to the infrastructure of the precinct, a stormwater management area has been constructed on the parcel north of Andy Holt Avenue and south of Robinson Hall. The Site plan on page 4 indicates the extents of the stormwater management area.

Residence Hall	Physical Address	# of Beds	# of Residents	Occupancy %
Fred D. Brown Jr. Hall	1817 Andy Holt Avenue	680	662	97.4%
Clement Hall	1629 W. Cumberland Ave	699	669	95.7%
Dogwood	2113 Andy Holt Ave	464	461	99.4%
Geier Hall	858 20th St	376	372	98.9%
Hess Hall	1720 Melrose Place	1079	1026	95.1%
Laurel Residence Hall	1615 Laurel Ave	707	668	94.5%
Massey Hall	825 Volunteer Blvd	592	551	93.1%
Magnolia	2107 Andy Holt Ave	408	403	98.8%
North Carrick Hall	1021 Francis Street	517	506	97.9%
Reese Hall	1910 Caledonia Ave	520	504	96.9%
Robinson Hall	862 20th St	296	290	98.0%
South Carrick Hall	1023 Francis Street	543	533	98.2%
Stokely Hall	1311 Lake Loudoun Blvd.	666	601	90.2%
Volunteer Hall	1525 White Avenue	711	706	99.3%
Vo Condos	22nd St.	0	0	
Aspen Heights	2223 Cumberland Ave.	107	105	98.1%
		8,365	8,057	96.3%

Fall 2021 Residence Hall Occupancy

This amendment proposes solutions to meet the immediate needs for more beds while still supporting the vision identified for this precinct of campus. Two strategies are employed to accelerate bringing new beds online, proposing construction on vacant sites and renovation of existing buildings. In lieu of renovation, two existing buildings could be razed and rebuilt.

### **Proposed Building Renovations or Replacement**

Reese and Carrick Halls are two older residence halls that were constructed in the early 1960s, and are in need of major renovation or replacement. The ceiling heights and room configurations of these residence halls make renovations difficult and are unappealing to today's college student. These buildings are currently requested by students as a last option and will likely include a significant volume of concerns and dissatisfaction from the students and families of the students assigned to these buildings. Comprehensive infrastructure and architectural renovations are needed to address the undesirability of these buildings for current students. Renovation versus replacement of these buildings will be evaluated further during the design process.

#### **Proposed New Construction**

The first project proposed to increase capacity is the construction of a new residence hall near Dogwood and Magnolia Halls on the remaining site of the West Campus Redevelopment near Twentieth Street. This building will have approximately 525 beds. The layout will be double occupancy rooms with a shared bath and comparable amenities to other residence halls on campus. This building will also include some classrooms and offices to assist with campus needs.

The second new student housing building is proposed on the site located between Caledonia and Terrace Avenues, just east of the Advent House. This building will have approximately 750 beds. The proposed unit layout will be double occupancy rooms with a shared bath and comparable amenities to other residence halls on campus. This building will also include some classrooms and offices to assist with campus needs.

#### **Student Housing**



Carrick Hall



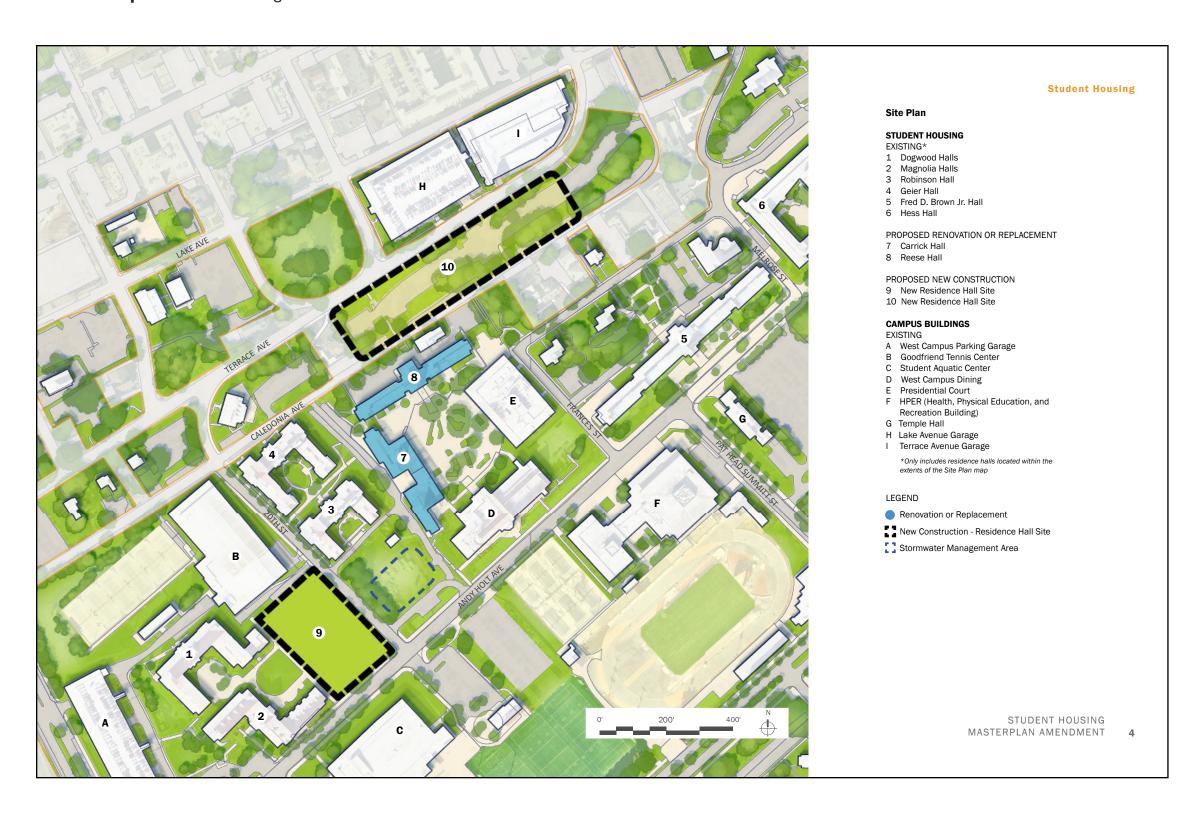


Dogwood Hall, opened in 2019

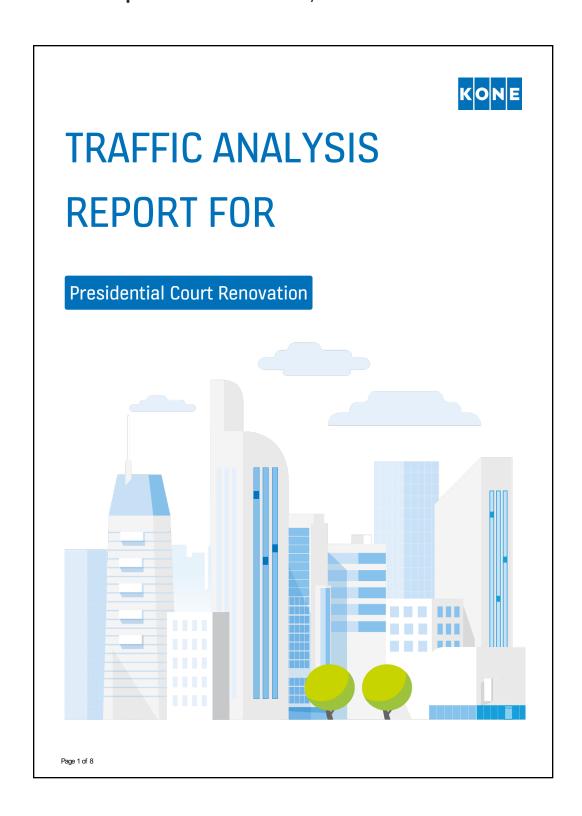
STUDENT HOUSING MASTERPLAN AMENDMENT 3



### **Exhibit B** | Student Housing Master Plan Amendment



**Exhibit C |** Elevator Traffic Analysis



# CONTENTS 1. SUMMARY 1.1. Elevator analysis 2. BUILDING DATA 3. ELEVATORS 3.1. Elevator parameters 3.2. Speed selection 3.3. Elevator calculation results 4. Terms Version: Report 1 Created: 27.06.2022 23:31:25 (UTC+05:30) Created by: Spencer Davidson

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### **Exhibit C |** Elevator Traffic Analysis

### 1. SUMMARY

People flow in Presidential Court Renovation is analyzed. The building has 3 floors and the travel height is 24 (ft) 0 (in). The assumed population is 275 persons.

BUILDING TYPE:

#### 1.1. ELEVATOR ANALYSIS

#### CALCULATION RESULTS

ELEVATOR GROUP: 3500lb duplex 200fpm GROUP CONTROL: FULL COLLECTIVE CONTROL

No of Elevators 2 | Floors/Stops 1 - 2 / 2 | Rated Load (lbs) 3500 | Rated Capacity (persons) 21 | Passenger Capacity (persons) 16 | Speed (ft/min) 200 | NTT (s) 7.2 | Population 275 | Car Capacity Factor(CCF) 80%

 Up-peak
 12
 33
 10
 13.3
 Yes

ELEVATOR GROUP: 4000lb duplex 200fpm GROUP CONTROL: FULL COLLECTIVE CONTROL

No of Elevators 2 | Floors/Stops 1 - 2 / 2 | Rated Load (lbs) 4000 | Rated Capacity (persons) 24 | Passenger Capacity (persons) 19 | Speed (ft/min) 200 | NTT (s) 7.2 | Population 275 | Car Capacity Factor(CCF) 80%

TRAFFIC TYPE	DEMAND (% / 5 min)	DEMAND (persons / 5 min)	CCF AT DEMAND (%)	INTERVAL (s)	MEETS THE CRITERIA
Up-peak	12	33	10	13.5	Yes

#### DISCLAIMER

The results of the report are valid exploring theoretical vertical-traffic planning scenarios which involve KONE products, services, and people flow planning tools. The results of the report are sensitive to the parameter values used and data which is used as input, and are applicable only with the input values shown in the report. Therefore, results should not be interpreted as any kind of representation or warranty of the performance of any actual elevator installation. KONE shall in no event be liable for any damage caused by or incurred in connection with the use of the results. The user shall have no right to make copies of, or reproduce, disassemble, decompile, reverse engineer or modify the results of the report or disclose it to any third party.

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### 2. BUILDING DATA

Assumed population is 275 persons

Floor	Comment	He	ight	Tra	avel	Population	Entry %	
FIOOI	Comment	Feet	Inch	Feet	Inch	Рориацоп	Lifty 70	
2				24	0	225	0	
1		12	0	12	0	50	100	
0		12	0	0	0	0	0	

### 3. ELEVATORS

#### 3.1. ELEVATOR PARAMETERS

ELEVATOR GROUP PARAMETERS		
Elevator group name	3500lb duplex 200fpm	4000lb duplex 200fpm
Number of elevators in group	2	2
Rated speed	200 ft/min	200 ft/min
Acceleration	2 ft/s <sup>2</sup>	2 ft/s <sup>2</sup>
Jerk	2.6 ft/s <sup>3</sup>	2.6 ft/s <sup>3</sup>
Rated Load	3500 lbs	4000 lbs
Rated Capacity	21 persons	24 persons
Passenger Capacity	16 persons	19 persons
Loading Limit	80 %	80 %
Avg Person Weight	165 lbs	165 lbs

Elevator group name	3500lb duplex 200fpm	4000lb duplex 200fpm
Туре	High duty	High duty
Opening	Center	Center
Width	36 in	36 in
Closing time	2.5 s	2.5 s
Opening time	1.7 s	1.7 s
Two-way transfer times per passenger	2.3 s	2.3 s
Photocell delay	0.9 s	0.9 s
Start delay	0.7 s	0.7 s

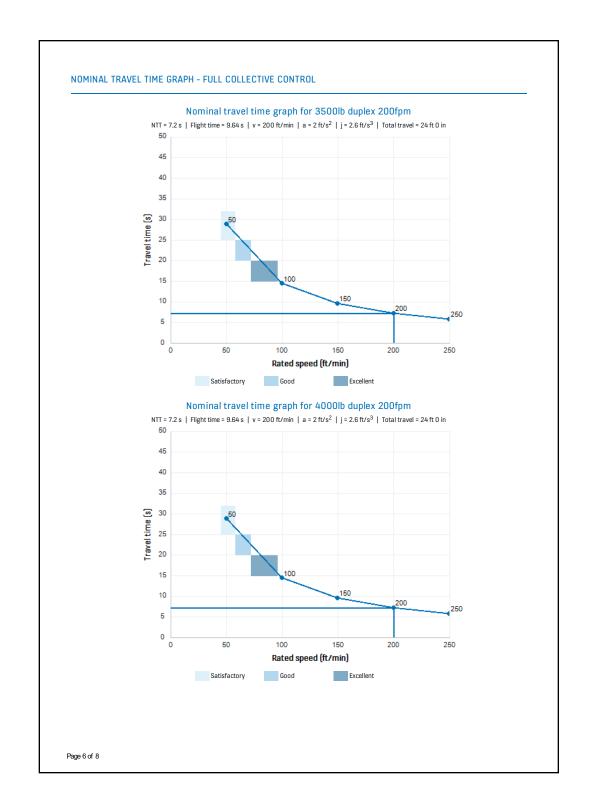
ADVANCE DOOR OPENING		
Elevator group name	3500lb duplex 200fpm	4000lb duplex 200fpm
Distance	0.25 ft	0.25 ft
Speed	75 ft/min	75 ft/min

#### 3.2. SPEED SELECTION

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# **Exhibit C |** Elevator Traffic Analysis

		4000lb duplex 200fpm	
	9 ft - 59 ft (per min)	39 ft - 59 ft (per min)	
	9 ft - 79 ft (per min)	59 ft - 79 ft (per min)	
Excellent 7	9 ft - 98 ft (per min)	79 ft - 98 ft (per min)	
RATED SPEED CLASSIFICATION			
Elevator group name	3500lb duplex 2	00fpm 4000lb duplex 200fpm	<u>_</u>
Rated speed	200 ft/min	200 ft/min	_
Travel height	24 ft 0 in	24 ft 0 in	_
Populated floors	1 - 2	1 - 2	_
Nominal travel time	7.2 s	7.2 s	_
Minimum flight distance where full speed is reached	d 8 ft 1 in	8 ft 1 in	_





### **Exhibit C |** Elevator Traffic Analysis

#### 3.3. ELEVATOR CALCULATION RESULTS

OVERALL CLASSIFICATION		
Target design criteria	KONE - Good	
Overall performance	3500lb duplex 200fpm Excellent	4000lb duplex 200fpm Excellent

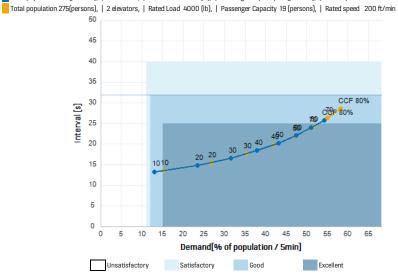
UP-PEAK RESULTS		
Elevator group name	3500lb duplex 200fpm	4000lb duplex 200fpm
Car Capacity Factor (CCF)	80% (12.8 persons)	80% (15.2 persons)
Handling Capacity (HC5)	149.3 persons / 5 min	160.1 persons / 5 min
Relative Handling Capacity (%HC5)	54.3 % / 5 min Excellent	58.2 % / 5 min Excellent
Average Round Trip Time	51.4 s	57 s
Average Interval	25.7 s- Good	28.5 s- Good

Note: Handling capacity, interval and round trip time are only for Full collective control.

#### PERFORMANCE GRAPH - FULL COLLECTIVE CONTROL

### Performance Graph

Total population 275(persons), | 2 elevators, | Rated Load 3500 (lb), | Passenger Capacity 16 (persons), | Rated speed 200 ft/min



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### 4. TERMS

Handling Capacity (HC) is 80% of the theoretical Transportation Capacity considering randomness in passenger arrivals and saturation in queuing.

Transportation Capacity (TC) is the theoretical number of persons per hour the system can transport.

Car Capacity Factor (CCF) is the maximum load in percent of nominal load reached during elevator round trip.

Utilization Factor (UF) is the actual demand in percent of transportation capacity.

Level of Service (LOS) shows the pedestrian space around, classified to A-F. Level A is spacious, level F is very

**Interval** shows how often elevators leave the lobby during up-peak.

Nominal travel time (NTT) is obtained by dividing the travel height by the elevator rated speed.

Average waiting time (AWT) is the time from when a passenger either registers a landing call, or joins a queue, until the responding elevator begins to open its doors at the boarding floor.

Average time to destination (ATTD) is the time from when a passenger either registers a landing call or joins a queue until the passenger alights at the destination floor.

**Percentage of long waits** is the proportion of passengers whose waiting time exceeds 60 seconds.

**Percentage of long journeys** is the proportion of passengers whose Time to destination exceeds 120 seconds.

**Average queue length** (AQL) shows the line of people with constant traffic.

Full Collective (FC) control with up and down call buttons at landings and elevator serves the landing calls according to the running direction.

Destination Control System (DCS) with Destination Operation Panels at the landings and people with the same destination calls are allocated in the same cars.

Destination Operation Panel (DOP) is a keypad at a landing where passenger can directly give the destination floor call to the elevator group.

Brake to brake time begins when the elevator car starts to move and ends when the elevator car has stopped

Door closed to brake closed begins when the door is closed and ends when the elevator car has stopped after

Door closed to beginning of door opening begins when the door is closed and ends when the door starts to open near the end of the run before the car has stopped.

Door to door performance time begins when the door starts to close and ends when the door is 800 mm

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#### WWW.HED.DESIGI

Jon Howard, AIA, CDT Project Manager jhoward@hed.design 312.324.7450

Katherine Kalant, AIA Design Leader kkalant@hed.design 312.324.7427

1 East Wacker Drive Suite 200 Chicago, IL 60601

