



Fire Department Expansion Study

FINAL STUDY DOCUMENT

APRIL 3, 2023

Acknowledgements

Clemson University

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EXECUTIVE SUMMARY

Executive Summary

The purpose of this study was to provide critical information for decision making, determining costs and feasibility.

The current station located along Perimeter road, does not have enough capacity to serve the departments needs, and additional space is required to be able to consolidate all Fire Department personnel and functions at the same location. With the anticipated combined facility for CU public safety several years out, the Fire Department building needs renovation and added space to allow for these functions to remain at the current facility until the new campus can be realized.

Two options were studied as part of this exercise. The study included a programming assessment of current and future needs, existing building assessment, exterior imagery to ensure the proposed facility would be contextual the rest of the facility and appropriate to campus.

Option 1: Renovation and Expansion of the existing facility.

Option 2: Renovation within the existing facility as required with on site modular units to provide additional space.

During the study, it was determined that the Perimeter Road Expansion project would include additional parking for the Fire Department located in the likely placement of the building expansion. That expanded parking was removed from the Perimeter Road Expansion Project and is included in the cost estimate for both options.

Summary of Anticipated Costs

Option 1: \$3,464,880.00

Option 2: \$1,900,860.00*

**Based on ROM pricing provided by Modular Solutions Inc*



ASSESSMENT OF NEEDS

Proposed Program

The proposed program is designed to accommodate current needs and opportunity for minimal growth based on the understanding that this expanded location would be temporary until the combined Emergency Operations / Emergency Response Facility could be realized.

Summary of spaces is included to the right:

	Sq Ft		Total Sq	
	Each	Qty	Ft	Comments
Fire Chief	175	1	175	
Deputy Chief	150	1	150	
Fire Marshal	120	1	120	
Fire Inspectors	120	1	120	
Training Captain	120	1	120	
Captain CCR	120	1	120	
Logistics Captain	120	1	120	
Shift Captain	120	2	240	Extra office for growth
Administrative Assistant	100	2	200	one does financial, one does front desk. Adjoining door between offices.
OTHER SPACES				
Security/IT Closet	120	1	120	
Waiting	200	1	200	secure from facility
Wellness Room	100	1	100	Space for a rocking chair, sofa, sink and counter with dorm fridge.
Customer Service Window	48	1	48	Admin Assistant manned.
Multi-purpose Room	450	1	450	25 folks at tables and chairs for shift meetings, education, conference area. Could be one room. Floor boxes.
Chair and Table Storage	150	1	150	
Manequine	120	1	120	Adjacent to multipurpose room
Fire Marshall Conference Room	200	1	200	Adjacent to waiting room with space for plan layout.
Public Toilet	50	1	50	
Staff Toilets	210	2	420	
Breakroom	120	1	120	Fridge, sink, drink machine, vending machine. Colocate with multipurpose room for serving food at meetings.
Public Education Storage	120	1	120	tents and larger items forthcoming. Promotional items, bins. Shelving needs.
Storage room	100	1	100	office supplies
Workroom	120	1	120	Space to put together binders, copy, some small mail slots.
Janitor	50	1	50	cleaning supplies
Total Square Feet			3,683	
<i>Internal Circulation Factor</i>		<i>35%</i>	<i>1,289</i>	
Total Net Square Feet			4,972	
<i>Building Efficiency</i>		<i>80%</i>	<i>1,243</i>	
Total			6,215	

Parking crunch at shift change.

Exterior space for a grill and picnic. Ideally between existing station and this building.

EXISTING BUILDING ASSESSMENT

Facility Overview

The facility was constructed in the early 80's with renovations occurring in 2012 (Restroom Renovation), 2014 (Installation of Fire Sprinkler System) 2022 (Roof Replacement) and 2023 (LED interior lighting throughout). The building was constructed for the fire department, and they have remained the sole occupant since it's construction. The building is organized in 3 volumes. The two largest are the apparatus bays and the administrative/living space for the Fire department. The small connector acts as primary entry from both the north and south and houses additional administrative space.

The one-story brick building is constructed of noncombustible materials with exterior walls comprised of CMU walls at the truck bays, and 6" steel studs at the administrative portion of the building. Bar joists support a low slope roof which was replaced in 2022 with a modified bitumen roof. Interior steel stud partitions terminate at the underside of the bar joists which creates lack of acoustical privacy between spaces.

Aluminum windows are original to the building and are in fair condition. Owner may want to consider replacement, but replacement would not be required to complete the renovation. Finishes throughout are in worn condition and should be replaced to continue to serve the fire department or any future occupant of the building for years to come.

The existing parking lot is undersized for the department and does not support the need at shift change time frames. Additionally, the Perimeter Road Expansion project is removing the ADA parking currently located along perimeter road.

Proposed Renovation / Expansion

The existing facility has been well utilized by the fire department, but they have outgrown the current facility and have been required to locate members of the department where administrative space was available elsewhere on campus. The goal of the study was to provide an expansion to the facility to increase the administrative space into a new wing while capturing existing space in the current administrative area portion of the building for department living space (bunk rooms and day room).

The resulting concept includes a stand-alone administrative building that creates a occupiable court between the new admin building and the existing facility.

Renovations to the existing building will consist of mostly necessary building system updates (refer to existing facility narratives) and interior finishes. Space partitions will remain in current locations with some minor modifications to space usage in the day room (referred to as conference room on the plans). A summary of interior updates is listed below:

1. Extend all interior partitions to the deck for better acoustic privacy
2. New Flooring Throughout
 - a. LVT in most spaces
 - b. Carpet Tile in Bunk Rooms
 - c. Porcelain Tile in Bathrooms
3. New Paint Throughout
4. New Ceilings Throughout
5. Replace Kitchen Casework and Counter Surface
6. Updated Restrooms to include New Finishes (Porcelain floor and wall tile) and plumbing fixtures.
7. New lighting recently provided as part of Green Tiger One Program (to remain).

The new admin building will be constructed of like materials with building systems to support and the existing parking lot will be reworked and expanded to provide a new home to the ADA parking and additional parking at the site.

Refer to architectural plans, renderings and site exhibits for more information.

Mechanical

The facility is served by a single 10-ton roof mounted packaged heat pump. The unit has been replaced and is approximately 7-10 years of age and in fair condition. Maintenance staff reported having a few issues in the past with the unit.



Figure 1: Packaged Heat Pump

The air distribution consists of sheetmetal ductwork with an external duct wrap, a series of lay-in ceiling mounted supply air grilles with a plenum return air system. The ductwork and insulation wrap is original construction and in fair condition. The ceiling mounted diffusers and grilles also appear original and are in poor condition. Staff indicated that many of the walls are not full height, and the plenum return creates a lot of “cross talk” among adjacent spaces.



Figure 2: Supply Diffuser

The rooftop unit is controlled by a wall mounted programmable thermostat in fair condition, it is not connected to a building automation system. Staff indicated there is no redundancy to the air conditioning system and requested some or all spaces have some sort of redundancy as the facility serves life safety purposes. From review of available roof space there does appear to be an opportunity to provide this redundancy. The facility has two toilet rooms that are served by ceiling mounted exhaust fans in poor condition. The fans are controlled by a wall switch that is interlocked with the space lights. The break room range is served by a light commercial range hood in fair condition. The apparatus bay is heated with approximately six electric unit heaters that are in fair to poor condition. A newer vehicle exhaust system with central fan and numerous hose drops serves the emergency vehicles while operating in the bay.



Figure 3: Vehicle Exhaust System

Plumbing

The facility is served by a 2-1/2" domestic cold-water line that enters the building in a closet adjacent to one of the restrooms. Maintenance staff reported that the domestic water lines throughout the facility needed to be replaced. The domestic water lines appear to be constructed of copper and are generally original construction. The piping is insulated with fiberglass and includes an all-service jacket that is generally in poor condition. Hot water is provided by a State (manufacturer) 40-gallon tank type water heater with 4.5 kW heating element. The water heater is newer and in good condition.



Figure 4: Water Heater



Figure 5: Water Closet

Staff requested some sort of redundancy in the hot water system. It was indicated that while the facility does not currently have a natural gas service a gas line is routed at the street and could potentially serve domestic water heating requirements. The water heater is installed in a janitor's closet adjacent to a pedestal mounted mop sink in poor condition. The janitor's closet does not include an exhaust fan and cannot contain the odors from cleaning equipment and solutions. Two gang toilet rooms (male and female) serve the facility that appear to have been renovated since the original construction. Lavatories are counter mount, with single level manual faucets and are in fair condition. Wall mounted shower heads and faucets serve each toilet room and are in fair condition. Water closets are floor mounted, white vitreous china and served with a manual flush valve. The male restroom includes wall mounted white vitreous china urinals served by manual flush valves. All flushing fixtures are in fair condition.

The breakroom is served by a stainless-steel double bowl sink with gooseneck faucet. The sink and faucet are in fair condition. The apparatus bay has a service sink in fair condition that includes a manual faucet. There are several hose connections and hose bib type connections for additional domestic water needs in the apparatus bay.

Fire Protection

A wet fire suppression system was installed to serve the facility approximately five years ago. The fire riser is installed within the apparatus bay and indicates good pressure from recent tests. The fire suppression riser includes a backflow preventer and serves upright sprinkler heads where exposed and ceiling mounted pendants in areas with lay-in ceilings. The sprinklers in the apparatus bay have guards preventing the accidental discharge of heads. The system is in fair to good condition.



Figure 6: Fire Riser

Electrical

Electrical Distribution

The electrical distribution system is **208Y/120-volt** system provided by a **pad mounted** transformer supplied by Clemson Electric. The main distribution equipment is a ITE 500A panelboard located in the hallway. The equipment was manufactured in 1980, is in poor condition and has no spare capacity. This equipment should be replaced. The main panel feeds an ITE 100A panelboard located in the office. The equipment was also manufactured in 1980, is in poor condition and has no spare capacity and should be replaced.



The existing pad mounted transformer is slated to be replaced by the university this year. It is suggested the replacement transformer be located such that will allow it to serve the new building as well. There is an existing splice between the road and the existing building that would be an ideal location.



Generator

There is a Kohler 60KW/75 KVA, Diesel generator located outside the truck bay which serves the whole building. This equipment is approximately 6 years old, is in good condition, has spare capacity and could be retained, however the owner has requested a single generator to feed both the existing and new building

The generator is connected to the service by a 225A, Cummins automatic transfer switch. This equipment was recently replaced, in excellent condition, and therefore could be retained. However, this arrangement is not code compliant as emergency lighting and life safety loads must be in a separate ATS. This will be corrected in the renovation



Lighting

For the most part, interior lighting fixtures in the building are 2x4, Recessed fixtures utilizing T-8 and T-5 LED lamps. Supplemental lighting fixtures are utilizing LED and CFL lamps are used in some areas. Fixtures are outdated and will be replaced. The fixtures are controlled primarily by Manual switches, Energy code requires lighting to be automatically controlled, therefore, occupancy sensors will need to be added.

Exterior building mounted fixtures generally mounted in the canopies, utilize LED retrofit lamps, are in fair condition, and should be replaced. Fixtures are controlled by photocell/time clock. Exterior pole mounted fixtures are cobra head fixture utilizing Metal Halide lamps, are in fair condition, and should be replaced or supplemented.

Emergency Lighting is achieved via fixtures connected to the Generator. Exit signage coverage is lacking. These deficiencies will be corrected during construction.

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Following site visit, interior were replaced with LED as part of the Green Tiger One Project.



Fire Alarm

The fire alarm system is a Simplex 4100U, located in office, appears to be in good condition and could be retained however the owner has requested it be replaced. There are gaps in the coverage for detection and activation devices. This deficiency will be corrected during construction. The owner reports the sprinklers were added to the building approximately 6 years ago. The building still has the smoke detections require for an un-sprinklered building. These may be deleted in the renovation.



April 3, 2023

Telephone/ Data

The telephone system demarks on a telephone board in the mech closet. A VoIP system is located in the meeting room system, appears to be in good condition and could be retained however it is not in an ideal location.

The data system is a collection of cabinet located in mech closet, appears to be in good condition and should be retained. The cabling is primarily Cat 5, cabling and is distributed in loose above the ceiling



Emergency responder radio coverage

The building currently is not equipped with Emergency Responder radio coverage system in accordance with Section 510 of the International Fire. The owner should have tests performed by the local Emergency Responder agencies to determine if the radio signal strength is adequate at all points in the building. If all portions of the building pass testing, the owner may request a variance for the local Fire Marshall.

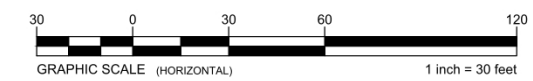
Fire Department Expansion Study

SITE EXHIBITS

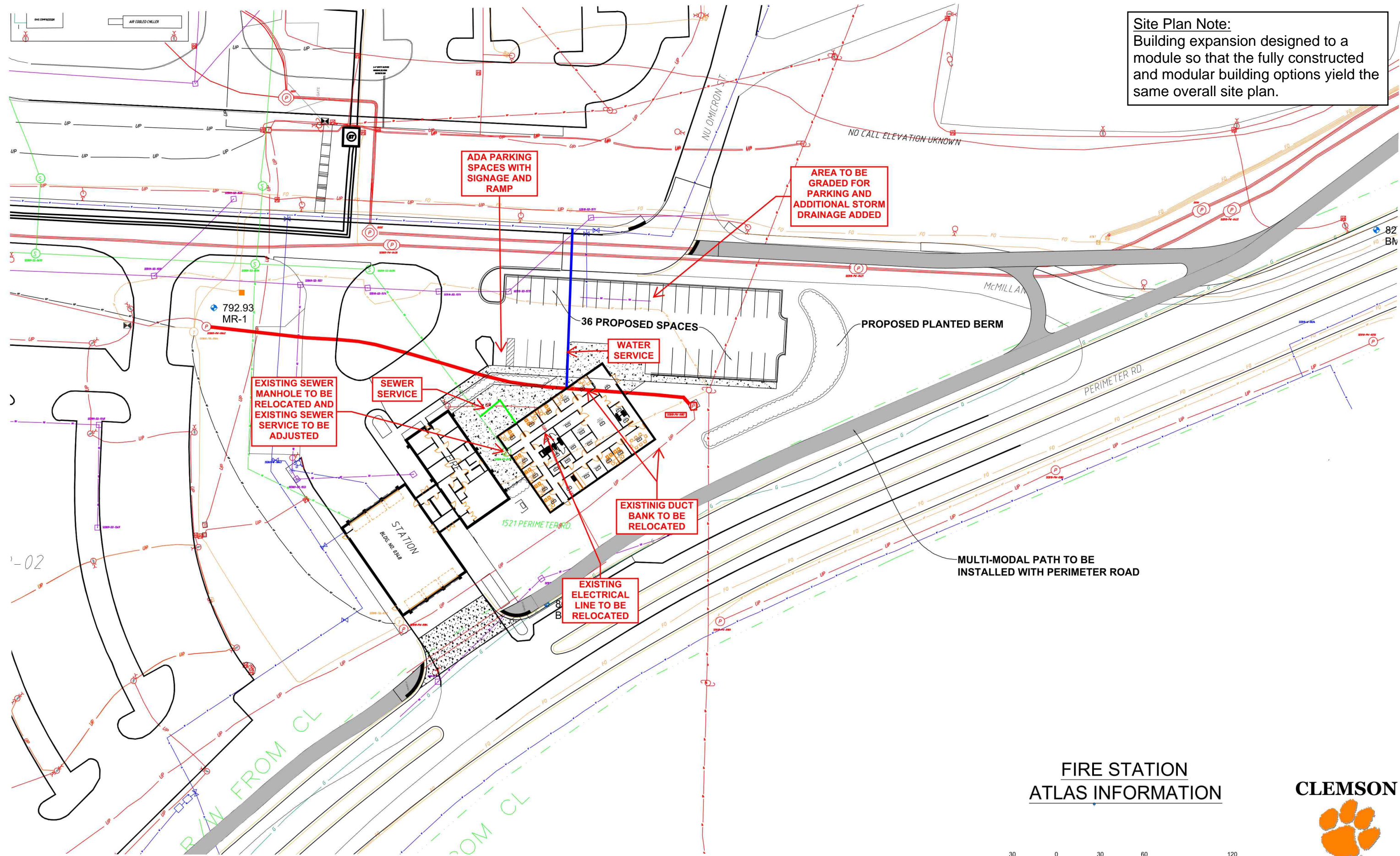
Site Plan Note:
Building expansion designed to a module so that the fully constructed and modular building options yield the same overall site plan.



FIRE STATION



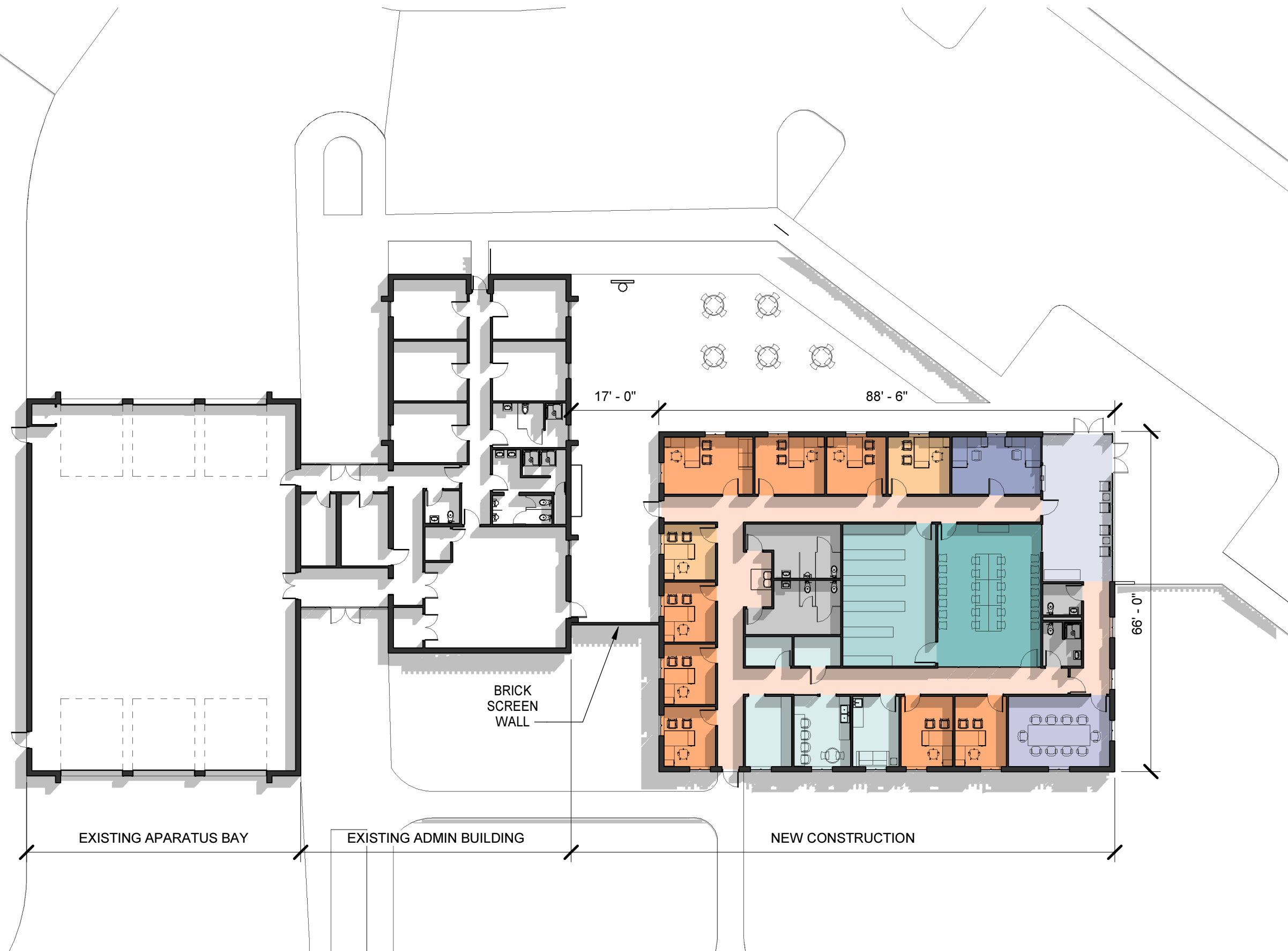
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Building expansion designed to a module so that the fully constructed and modular building options yield the same overall site plan.



**FIRE STATION
ATLAS INFORMATION**

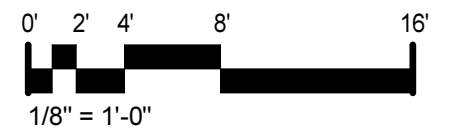


PROPOSED FLOOR PLANS



Department Legend

- Administration
- Circulation
- Conference Room
- Multi-Purpose Room
- Office
- Spare Office
- Storage
- Support
- Toilets
- Waiting Room



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MOSELEYARCHITECTS

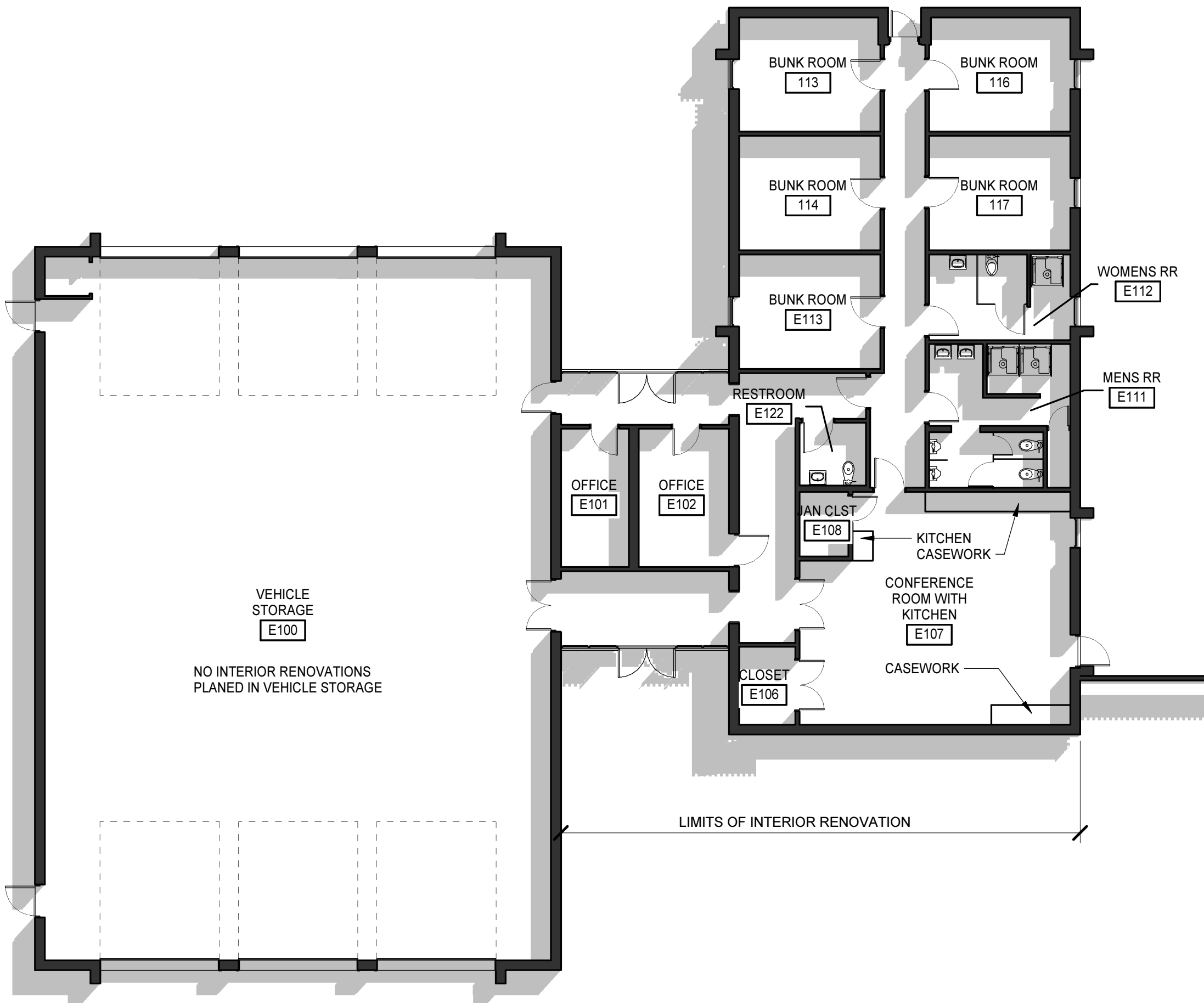
3200 NORFOLK STREET, RICHMOND, VA 23230
 PHONE (804) 794-7555 FAX (804) 355-5690
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CLEMSON UNIVERSITY FIRE STATION ADDITION

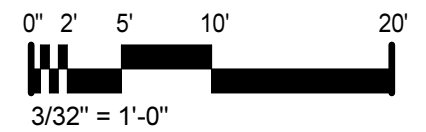
CLEMSON UNIVERSITY

624631

OVERALL

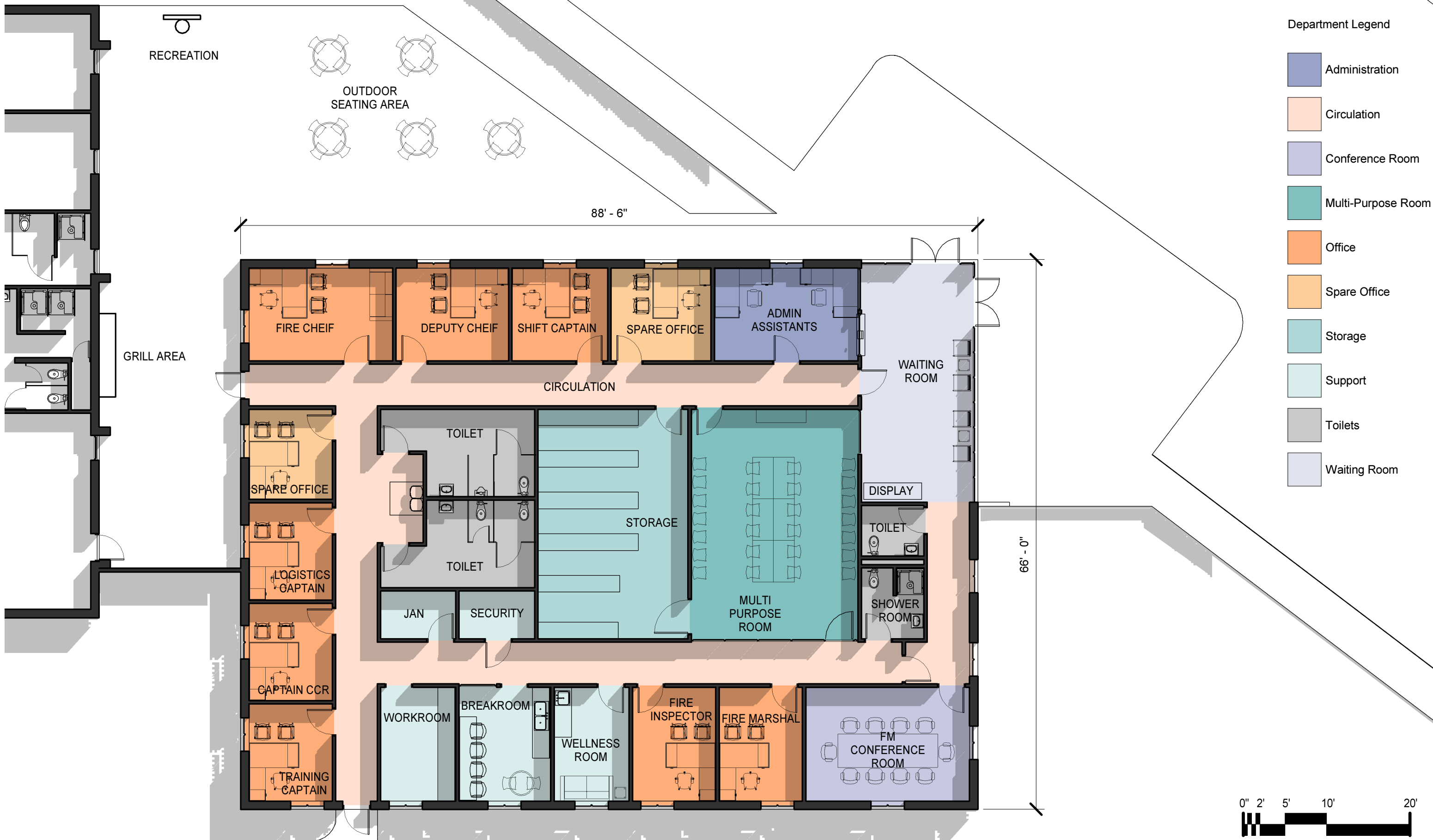


- Existing Admin Renovation:**
- A. Extend all interior partitions to deck for better acoustic privacy (currently only extend a few inches above ceiling).
 - B. New Flooring throughout:
LVT in most spaces
Carpet Tile in Bunkrooms
 - C. New Paint Throughout
 - D. New Ceilings Throughout:
Replace Ceiling Tile and Grid (2x4 Lay-in)
 - E. Replace Kitchen Casework and Counter Surface
 - F. Update Lighting Throughout
 - G. Update Restrooms to include New Finishes (floor tile/wall tile) and plumbing fixtures.
 - H. New lighting currently being provided by owner as part of Green Tiger One Program to remain.



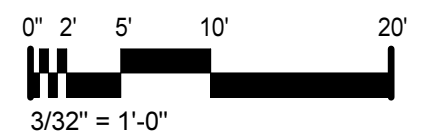
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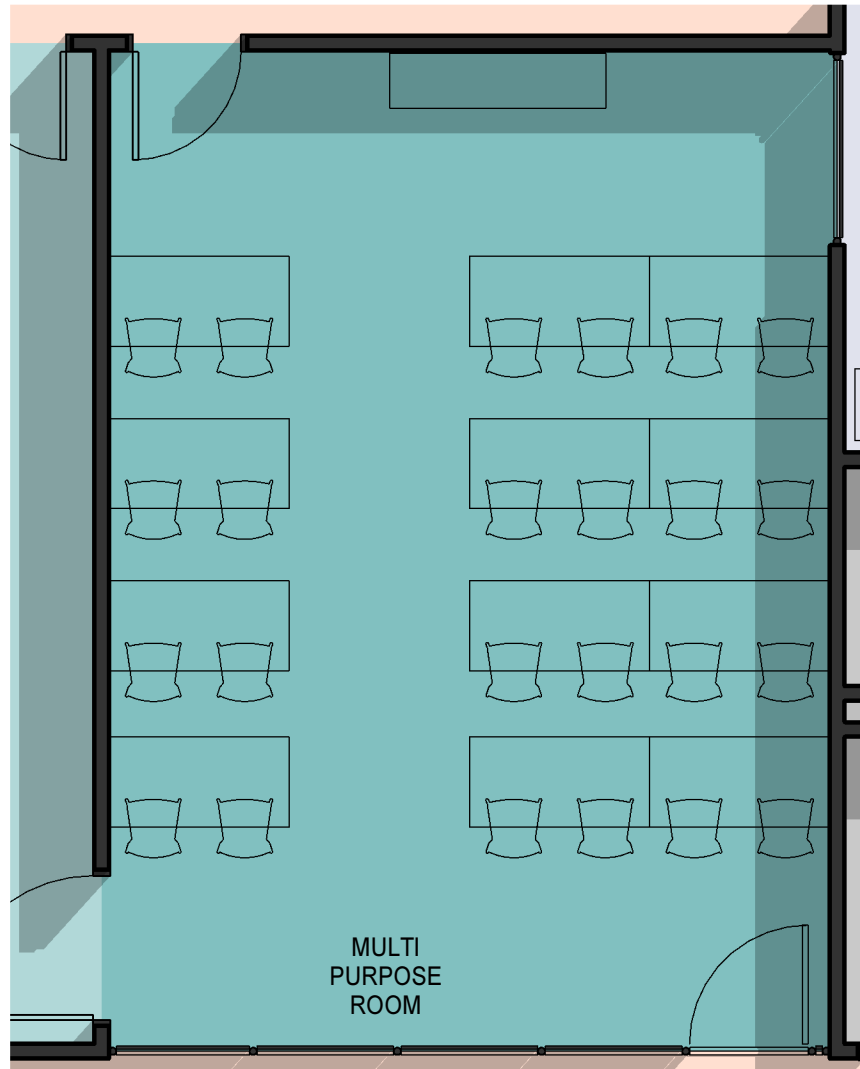
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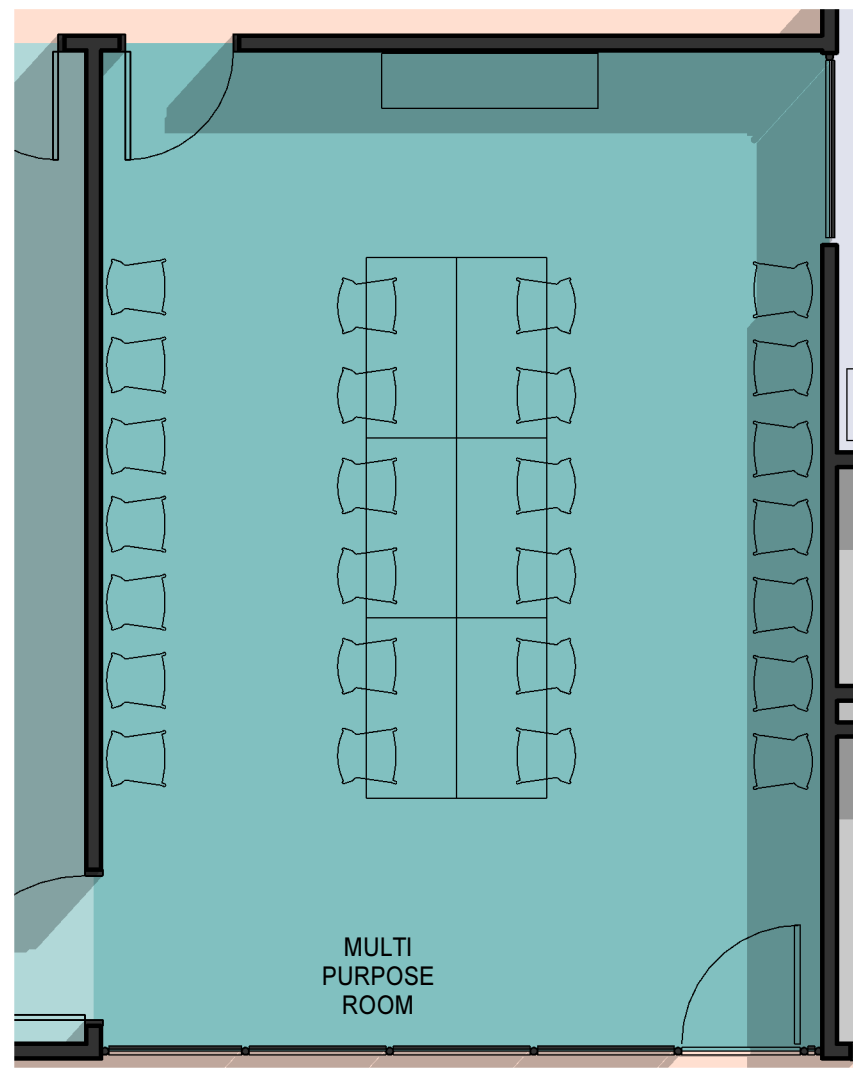
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- Spare Office
- Storage
- Support
- Toilets
- Waiting Room

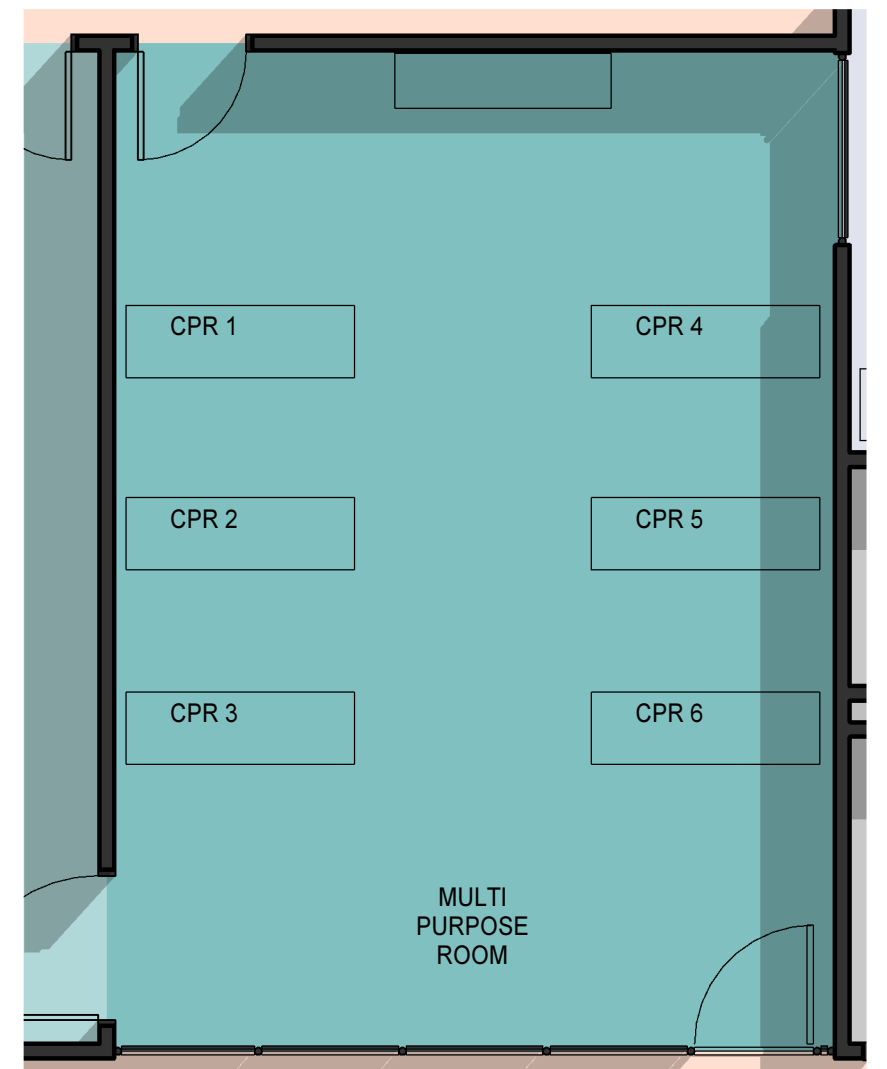




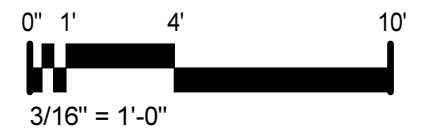
CLASSROOM LAYOUT



CONFERENCE LAYOUT



CPR INSTRUCTION



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RENDERINGS



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RENDERINGS

COST ESTIMATE

COST PLUS

+++++

Tel: 864/653-6320

E-Mail: CPestimating@ATT.netwww.CostPlusEstimating.com

March 28, 2023

Estimator: R. Roark

Project No: 10-23

Conceptual Design: Construction Cost Estimate

PROJECT: Clemson University Fire Department Study

LOCATION: Clemson, SC

OWNER: Clemson University

ARCHITECT: Moseley Architects

Project Areas:

- Renovated Facility 2,685 SF
 - New Facility 5,841 SF

Total Project Area	8,526 SF
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Project Construction Cost Summary	TOTAL COST	COST / SF	% OF COST
+ Site Work	\$712,342	\$83.55	20.56%
+ Renovated Facility	\$463,518	\$172.63	13.38%
+ New Facility	\$2,289,020	\$391.89	66.06%
Total Estimated Construction Costs	\$3,464,880	\$406.39	100.00%

* **Note:** The Above Costs Include Design / Estimating (10%) & Escalation (5%) Contingences

Deduct Alternate:

* **Modular Units in lieu of Traditional Construction for the New Facility Deduct:** -\$1,564,020
Note: (Pricing of Modular Units provided by Modular Solutions, Inc.)

SITE WORK:

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Gravel Entrances	75	TN		0		0	60	4,500	4,500
Mobilization	1	LS		0		0	25,000	25,000	25,000
Layout / Staking	1	LS		0		0	12,600	12,600	12,600
Constuction Fencing / Gates	1,050	LF		0		0	23	24,150	24,150
Erosion Control Measures	1	LS		0		0	12,450	12,450	12,450
<u>Earthwork:</u>									
- remove / stockpile / respread topsoil	450	CY		0		0	15	6,750	6,750
- rough grading (cut / fill on site)	1	LS		0		0	32,625	32,625	32,625
- fine grading	1	LS		0		0	5,875	5,875	5,875
- remove unsuitables / rock excavation	N/A			0		0		0	0
<u>Selective Demolition:</u>									
- walks / pavement	1	LS		0		0	7,550	7,550	7,550
- storm pipe	100	LF		0		0	25	2,500	2,500
- misc. items	1	LS		0		0	1,500	1,500	1,500
<u>Storm Drainage:</u>									
- curb inlets	6	EA		0		0	5,000	30,000	30,000
- catch basin	2	EA		0		0	5,500	11,000	11,000
- relocate inlet	1	EA		0		0	1,850	1,850	1,850
- storm pipe (avg. 24")	540	LF		0		0	60	32,400	32,400
- roof drain site piping	325	LF		0		0	22	7,150	7,150
- tie-ins / connections	1	LS		0		0	3,750	3,750	3,750
<u>Utilities:</u>									
- Water Service (Domestic & Fire)	1	LS		0		0	33,350	33,350	33,350
- Sanitary Sewer	1	LS		0		0	9,400	9,400	9,400

Renovated Facility	TOTAL COST	COST / SF	% OF COST	
02 SELECTIVE DEMOLITION	\$8,357	\$3.11	1.80%	
06 WOOD & PLASTICS	\$12,613	\$4.70	2.72%	
07 MOISTURE & THERMAL PROTECTION	\$0	\$0.00	0.00%	
08 DOORS AND WINDOWS	\$0	\$0.00	0.00%	
09 FINISHES	\$93,326	\$34.76	20.13%	
10 SPECIALTIES	\$12,600	\$4.69	2.72%	
11 EQUIPMENT	\$0	\$0.00	0.00%	
12 FURNISHINGS	\$1,500	\$0.56	0.32%	
21 FIRE SUPPRESSION	\$780	\$0.29	0.17%	
22 PLUMBING	\$37,815	\$14.08	8.16%	
23 HVAC	\$11,300	\$4.21	2.44%	
26 ELECTRICAL SYSTEMS	\$133,990	\$49.90	28.91%	
27 COMMUNICATIONS	\$0	\$0.00	0.00%	
28 ELECTRICAL SAFETY & SECURITY	\$24,500	\$9.12	5.29%	
SUBTOTAL	\$336,781	\$125.43	72.66%	
MARK-UPS				
* <i>General Conditions</i>	7.50%	\$25,259	\$9.41	5.45%
* <i>Overhead & Profit</i>	10.00%	\$33,678	\$12.54	7.27%
* <i>Insurances</i>	2.18%	\$7,342	\$2.73	1.58%
SUBTOTAL	\$403,060	\$150.12	86.96%	
* <i>Design / Estimating Contingency</i>	10.00%	\$40,306	\$15.01	8.70%
* <i>Escalation (12 Months)</i>	5.00%	\$20,153	\$7.51	4.35%
Total Estimated Probable Construction Cost	\$463,518	\$172.63	100.00%	

02 SELECTIVE DEMOLITION

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
<i>Remove: (Incl. Haul & Dump)</i>									
- flooring	2,353	SF		0		0	0.70	1,647	1,647
- tile (wall & floor)	1,516	SF		0		0	1.15	1,743	1,743
- ceilings	2,685	SF		0		0	0.85	2,282	2,282
- casework	26	LF		0		0	10	260	260
- toilet partitions / accessories	1	LS		0		0	925	925	925
- misc. items	1	LS		0		0	1,500	1,500	1,500
Reremove / Store / Replace FFE items		<i>By Owner</i>		0		0		0	0
SUBTOTAL - SELECTIVE DEMOLITION				0		0		\$8,357	\$8,357

06 WOOD & PLASTICS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Treated Blocking / Plywood	710	BF		0		0	3.75	2,663	2,663
<i>Casework:</i>									
- @ kitchen	18	EA		0		0	375	6,750	6,750
- @ conference area	8	LF		0		0	400	3,200	3,200
SUBTOTAL - WOOD & PLASTICS				0		0		\$12,613	\$12,613

07 MOISTURE & THERMAL PROTECTION

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Roofing System		<i>* No Work *</i>							
SUBTOTAL - MOISTURE & THERMAL PROTECTION				0		0		\$0	\$0

08 DOORS & WINDOWS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Doors / Frames / Hardware:	* No Work *								
Windows	* No Work *			0		0		0	0
SUBTOTAL - DOORS & WINDOWS				0		0		\$0	\$0

09 FINISHES

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
<u>Floors:</u>									
- carpet tile	763	SF		0		0	5.50	4,197	4,197
- LVT	1,774	SF		0		0	7.50	13,305	13,305
- porcelain tile	148	SF		0		0	16.25	2,405	2,405
<u>Base:</u>									
- 4" resilient	785	LF		0		0	3.35	2,630	2,630
- porcelain tile	173	LF		0		0	9.40	1,626	1,626
<u>Interior Wall Systems:</u>									
- extend wall partitions to the deck	1,420	SF		0		0	18.75	26,625	26,625
<u>Ceilings:</u>									
- ACT	2,155	SF		0		0	5.45	11,745	11,745
- ACT (vinyl faced)	530	SF		0		0	5.75	3,048	3,048
<u>Painting / Wall Finish:</u>									
- painting (walls)	9,550	SF		0		0	0.95	9,073	9,073
- wall tile	1,184	SF		0		0	14.25	16,872	16,872
- doors / frames	18	EA		0		0	100	1,800	1,800
SUBTOTAL - FINISHES				0		0		\$93,326	\$93,326

10 SPECIALTIES

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
<u>Toilet Partitions:</u>									
- standard	1	EA		0		0	1,450	1,450	1,450
- handicap	2	EA		0		0	1,800	3,600	3,600
Urinal Screen	1	EA		0		0	450	450	450
<u>Toilet Accessories :</u>									
- grab bars, 18"	3	EA		0		0	85	255	255
- grab bars, 36"	3	EA		0		0	100	300	300
- grab bars, 42"	3	EA		0		0	115	345	345
- toilet tissue disp.	4	EA		0		0	75	300	300
- framed mirror	3	EA		0		0	135	405	405
- sanitary napkin disposal	1	EA		0		0	80	80	80
- soap dispenser	3	EA		0		0	65	195	195
- paper towel dispenser	3	EA		0		0	185	555	555
- coat hooks	6	EA		0		0	5	30	30
- mop holders	1	EA		0		0	135	135	135
- shower grab bars / accessories	3	EA		0		0	425	1,275	1,275
Interior Signage / Graphics	1	LS		0		0	2,250	2,250	2,250
TV Brackets	<i>By Owner</i>			0		0		0	0
Visual Display Boards	<i>By Owner</i>			0		0		0	0
FEC	3	EA		0		0	325	975	975
SUBTOTAL - SPECIALTIES				0		0		\$12,600	\$12,600

11 EQUIPMENT

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
A/V Equipment	<i>N.I.C.</i>			0		0		0	0
Residential Appliances	<i>N.I.C.</i>			0		0		0	0
Vending Machines	<i>N.I.C.</i>			0		0		0	0
SUBTOTAL - EQUIPMENT				0		0		\$0	\$0

12 FURNISHINGS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Window Blinds	1	LS		0		0	1,500	1,500	1,500
Loose Furniture	<i>N.I.C.</i>			0		0		0	0
SUBTOTAL - FURNISHINGS				0		0	\$1,500	\$1,500	\$1,500

21 FIRE SUPPRESSION SYSTEMS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Remove / Reinstall Trim Rings	1	LS		0		0	780	780	780
SUBTOTAL - FIRE SUPPRESSION SYSTEMS				0		0	\$780	\$780	\$780

22 PLUMBING SYSTEMS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Remove / Replace Fixtures	1	LS		0		0	13,850	13,850	13,850
Remove / Replace Domestic Water Line	1	LS		0		0	23,965	23,965	23,965
SUBTOTAL - PLUMBING SYSTEMS				0		0	\$37,815	\$37,815	\$37,815

23 H.V.A.C. SYSTEMS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Equipment / Ductwork	<i>No Work</i>			0		0		0	0
Replace Grilles / Diffusers	1	LS		0		0	5,400	5,400	5,400
New Exhaust Fan System @ Restrooms	1	LS		0		0	5,900	5,900	5,900
SUBTOTAL - H.V.A.C. SYSTEMS				0		0	\$11,300	\$11,300	\$11,300

26 ELECTRICAL SYSTEMS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Demolition / Remove Existing Systems	1	LS		0		0	4,965	4,965	4,965
Electrical Panels / Distribution	1	LS		0		0	16,775	16,775	16,775
Emergency Generator (<i>Both Facilities</i>)	1	LS		0		0	80,000	80,000	80,000
Replace Lighting / Switches / Controls	1	LS		0		0	32,250	32,250	32,250
SUBTOTAL - ELECTRICAL SYSTEMS				0		0	\$133,990	\$133,990	\$133,990

27 COMMUNICATIONS	<i>No Work</i>			0		0		0	0
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28 ELECTRONIC SAFETY & SECURITY

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Replace Fire Alarm System	1	LS		0		0	18,750	18,750	18,750
Access Control / CCTV	No Work			0		0		0	0
Relocate VOIP System	1	LS		0		0	2,500	2,500	2,500
Emergency Responder Radio	1	LS		0		0	3,250	3,250	3,250
SUBTOTAL - ELECTRONIC SAFETY & SECURITY				0		0		\$24,500	\$24,500
SUBTOTAL				\$0		\$0		\$336,781	\$336,781
MARK-UPS									
* General Conditions		7.50%							\$25,259
* Overhead & Profit		10.00%							\$33,678
* Insurances		2.18%							\$7,342
SUBTOTAL									\$403,060
* Design / Estimating Contingency		10.00%							\$40,306
* Escalation (12 Months)		5.00%							\$20,153
Total Estimated Probable Construction Cost: Renovated Facility									\$463,518

Unit Cost: \$172.63 /SF

New Facility	TOTAL COST	COST / SF	% OF COST	
03 CONCRETE	\$128,553	\$22.01	5.62%	
04 MASONRY	\$82,844	\$14.18	3.62%	
05 METALS	\$187,374	\$32.08	8.19%	
06 WOOD & PLASTICS	\$19,614	\$3.36	0.86%	
07 MOISTURE & THERMAL PROTECTION	\$144,177	\$24.68	6.30%	
08 DOORS AND WINDOWS	\$182,645	\$31.27	7.98%	
09 FINISHES	\$279,618	\$47.87	12.22%	
10 SPECIALTIES	\$20,820	\$3.56	0.91%	
11 EQUIPMENT	\$0	\$0	0.00%	
12 FURNISHINGS	\$6,500	\$1	0.28%	
21 FIRE SUPPRESSION	\$40,000	\$6.85	1.75%	
22 PLUMBING	\$90,000	\$15.41	3.93%	
23 HVAC	\$245,000	\$41.94	10.70%	
26 ELECTRICAL	\$190,000	\$32.53	8.30%	
27 COMMUNICATIONS	\$8,500	\$1.46	0.37%	
28 ELECTRICAL SAFETY & SECURITY	\$37,500	\$6.42	1.64%	
SUBTOTAL	\$1,663,145	\$284.74	72.66%	
MARK-UPS				
* General Conditions	7.50%	\$124,736	\$21.36	5.45%
* Overhead & Profit	10.00%	\$166,315	\$28.47	7.27%
* Insurances	2.18%	\$36,257	\$6.21	1.58%
SUBTOTAL	\$1,990,452	\$340.77	86.96%	
* Design / Estimating Contingency	10.00%	\$199,045	\$34.08	8.70%
* Escalation (12 Months)	5.00%	\$99,523	\$17.04	4.35%
Total Estimated Probable Construction Cost	\$2,289,020	\$391.89	100.00%	

03 CONCRETE

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Specialty Foundation Systems	Not Used								
Column Footings:	38	CY		0		0	1,085	41,230	41,230
* Including: excavation formwork concrete rebar anchor bolts / base plates									
Slab on Grade :									
- 4"tk / VB / 4" stone / Turndowns	5,841	SF		0		0	14.95	87,323	87,323
SUBTOTAL - CONCRETE				0		0		\$128,553	\$128,553

04 MASONRY

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Exterior Veneer:									
- brick veneer	3,144	SF		0		0	26.35	82,844	82,844
SUBTOTAL - MASONRY				0		0		\$82,844	\$82,844

05 METALS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Structural Steel:									
- columns	7.45	TN		0		0	4,950	36,878	36,878
- beams	11.35	TN		0		0	4,985	56,580	56,580
- bar joists	8.15	TN		0		0	4,890	39,854	39,854
- misc.bracing / framing / connections	1	LS		0		0	9,332	9,332	9,332
Metal Decking:									
Metal Roof Decking	6,256	SF		0		0	7.15	44,730	44,730
SUBTOTAL - METALS				0		0		\$187,374	\$187,374

06 WOOD & PLASTICS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Treated Blocking / Plywood	1,217	BF		0		0	3.75	4,564	4,564
Casework:									
- display case	1	EA		0		0	3,500	3,500	3,500
- base cabinet w/ top	28	LF		0		0	350	9,800	9,800
- counter	10	LF		0		0	175	1,750	1,750
SUBTOTAL - WOOD & PLASTICS				0		0		\$19,614	\$19,614

07 MOISTURE & THERMAL PROTECTION

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
TPO Roofing w/ Tapered Insulation	60	SQ		0		0	1,985	119,100	119,100
Wall Coping	310	LF		0		0	18	5,580	5,580
Canopies	2	EA		0		0	1,680	3,360	3,360
Shading Element (Incl.: Framing / ACM)	1	LS		0		0	14,385	14,385	14,385
Caulking & Sealants	1	LS		0		0	1,752	1,752	1,752
SUBTOTAL - MOISTURE & THERMAL PROTECTION				0		0		\$144,177	\$144,177

08 DOORS & WINDOWS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
<u>Doors / Frames / Hardware:</u>									
- (2) AL - full glass	2	PR		0		0	7,750	15,500	15,500
- SCWD, flush	11	EA		0		0	1,480	16,280	16,280
- SCWD, w/ view glass	12	EA		0		0	1,630	19,560	19,560
- Int. SF- glass	1	EA		0		0	2,985	2,985	2,985
- HM - flush	2	EA		0		0	2,210	4,420	4,420
- cased opening	2	EA		0		0	465	930	930
Automatic Openers	1	PR		0		0	8,500	8,500	8,500
Interior Storefront	250	SF		0		0	75	18,750	18,750
Pass-Thru Window Unit	1	EA		0		0	3,000	3,000	3,000
<u>Exterior Glass Systems:</u>									
- storefront	336	SF		0		0	95	31,920	31,920
- windows	19	EA		0		0	3,200	60,800	60,800
SUBTOTAL - DOORS & WINDOWS				0		0		\$182,645	\$182,645

09 FINISHES

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
<u>Floors:</u>									
- carpet tile	1,876	SF		0		0	5.50	10,318	10,318
- LVT	3,521	SF		0		0	7.50	26,408	26,408
- porcelain tile	443	SF		0		0	16.25	7,199	7,199
<u>Base:</u>									
- 4" resilient	1,442	LF		0		0	3.35	4,831	4,831
- porcelain tile	182	LF		0		0	9.40	1,711	1,711
<u>Exterior Metal Stud Wall System:</u>	3,700	SF		0		0	22.35	82,695	82,695
* Includes: mtl studs (16ga..) @ 16" o/c 5/8" gwb batt insulation exterior gyp sheathing air infiltration barrier									
<u>Interior Wall Systems:</u>									
- 4" partition	9,000	SF		0		0	9.00	81,000	81,000
- 6" partition	600	SF		0		0	10.70	6,420	6,420
<u>Ceilings:</u>									
- ACT	5,307	SF		0		0	5.45	28,923	28,923
- ACT (vinyl faced)	533	SF		0		0	5.75	3,065	3,065
<u>Painting / Wall Finish:</u>									
- painting (walls)	15,640	SF		0		0	0.95	14,858	14,858
- wall tile	680	SF		0		0	14.25	9,690	9,690
- doors / frames	25	EA		0		0	100	2,500	2,500
SUBTOTAL - FINISHES				0		0		\$279,618	\$279,618

10 SPECIALTIES

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
<u>Toilet Partitions:</u>									
- standard	1	EA		0		0	1,450	1,450	1,450
- handicap	2	EA		0		0	1,800	3,600	3,600
Urinal Screen	1	EA		0		0	450	450	450
<u>Toilet Accessories :</u>									
- grab bars, 18"	4	EA		0		0	85	340	340
- grab bars, 36"	4	EA		0		0	100	400	400
- grab bars, 42"	4	EA		0		0	115	460	460
- toilet tissue disp.	5	EA		0		0	75	375	375
- framed mirror	4	EA		0		0	135	540	540
- sanitary napkin dispenser	1	EA		0		0	325	325	325
- sanitary napkin disposal	3	EA		0		0	80	240	240
- warm air dryer	2	EA		0		0	475	950	950
- soap dispenser	4	EA		0		0	65	260	260
- paper towel dispenser	4	EA		0		0	185	740	740
- coat hooks	5	EA		0		0	5	25	25
- mop holders	1	EA		0		0	135	135	135
- shower grab bars / accessories	1	LS		0		0	425	425	425
Building Letters	1	LS		0		0	5,805	5,805	5,805
Interior Signage / Graphics	1	LS		0		0	3,000	3,000	3,000
TV Brackets		<i>By Owner</i>		0		0		0	0
Visual Display Boards		<i>By Owner</i>		0		0		0	0
FEC	4	EA		0		0	325	1,300	1,300
SUBTOTAL - SPECIALTIES				0		0		\$20,820	\$20,820

11 EQUIPMENT

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
A / V Equipment	<i>N.I.C.</i>			0		0		0	0
Residential Appliances	<i>N.I.C.</i>			0		0		0	0
Vending Machines	<i>N.I.C.</i>			0		0		0	0
SUBTOTAL - EQUIPMENT				0		0		\$0	\$0

12 FURNISHINGS

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
Window Blinds / Shading Devices	1	LS		0		0	6,500	6,500	6,500
Storage Systems	<i>N.I.C.</i>			0		0		0	0
Office / Conference Furniture	<i>N.I.C.</i>			0		0		0	0
SUBTOTAL - FURNISHINGS				0		0		\$6,500	\$6,500

21 FIRE SUPPRESSION SYSTEMS	1	LS		0		0	40,000	40,000	40,000
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22 PLUMBING SYSTEMS	1	LS		0		0	90,000	90,000	90,000
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23 H.V.A.C. SYSTEMS	1	LS		0		0	245,000	245,000	245,000
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26 ELECTRICAL SYSTEMS	1	LS		0		0	190,000	190,000	190,000
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27 COMMUNICATIONS (Rough-In)	1	LS		0		0	8,500	8,500	8,500
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28 ELECTRONIC SAFETY & SECURITY

Item Description	Quantity	u/m	MATERIAL		LABOR		SUBCONTRACT		TOTAL COST
			u/c	Total	u/c	Total	u/c	Total	
* Fire Alarm System	1	LS		0		0	30,000	30,000	30,000
* Access Control / CCTV (Rough-in)	1	LS		0		0	7,500	7,500	7,500
SUBTOTAL - ELECTRONIC SAFETY & SECURITY				0		0		\$37,500	\$37,500

SUBTOTAL				\$0		\$0		\$1,663,145	\$1,663,145
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MARK-UPS

* General Conditions	7.50%								\$124,736
* Overhead & Profit	10.00%								\$166,315
* Insurances	2.18%								\$36,257

SUBTOTAL									\$1,990,452
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* Design / Estimating Contingency	10.00%								\$199,045
* Escalation (12 Months)	5.00%								\$99,523

Total Estimated Probable Construction Cost: New Facility									\$2,289,020
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Unit Cost: \$391.89 /SF