



**PennState**  
New Kensington

Programming and Concept Study for:

# Student Union Building Addition

3550 7th Street Rd  
New Kensington, PA 15068

Penn State Project No. 00-06841.00 New Kensington Student Union 1-S

**NORR**



**Young people are idealistic, creative, and hopeful for the future. They have an energy and a passion that is boundless. They need an environment that will encourage and invite them to believe anything is possible.**

# PRO



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NOVA

# 1 Executive Summary

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# Executive Summary

Few projects on campus are as transformational as a new or renovated Student Union. It is the heart of campus, and the place where students come together to form lifelong memories, connections, and friendships. The Student Union is often the first stop on a prospective student's campus tour, and it is a direct reflection of your campus's history, mission and values. For forty-five years, the existing Student Union building on the Penn State New Kensington campus has been projecting these qualities to students, faculty and staff.

Originally opened in 1975 as the Student Learning Center, the existing Student Union Building is a two-story brick building located on the south side of the center courtyard directly connected to the Theater and IST Building. The existing Student Union Building contains the Academic and Career Success Center; that provides student tutoring, counseling, and career planning and placement services. It houses the Student Government Association office, the Café 780 cafeteria, the Penn State New Kensington Bookstore, and recreational facilities.

The Penn State New Kensington Campus, from its humble beginnings in 1958, has grown and evolved into a bustling modern campus. Like the campus on which it sits, the existing Student Union Building will now transform into a modern facility prepared for another half century of students. It will be poised to project the exciting growth of campus, the vibrant campus culture, and a unique Penn State New Kensington student experience.

Campus building projects involve many stakeholders, from the students who will use the facility to the staff that will operate and manage the building. The success of any project will depend heavily on maximizing stakeholder engagement, participation and contribution throughout the design process. Focus groups, meetings, and discussions are certainly a key component of the process; however, you need a process geared toward developing consensus, determining value, and measuring successful outcomes. A clear and succinct process that presents, studies, and evaluates design decisions fosters engagement, understanding, and agreement; it keeps a project moving forward in a timely manner. We structured our design process around four transparent parameters to assist everyone involved to make value-based decisions. This would be our roadmap for success; they are:

## Observation

We watch, learn, and listen. We come to campus to understand your unique story. We meet with all the stakeholders and work collaboratively to develop achievable project goals and a clear overall project scope. The design team continuously asks itself - What did we see? What did we hear?

We met with and interviewed the Penn State New Kensington Building Committee, individual user groups, and student body representatives. The New Kensington campus has been considering this project for some time, so early program documentation and project descriptions were made available. The design team utilized the original construction documents and project documentation to develop an existing conditions model and site plan.

## Analysis

We clearly define and delineate the parameters of all the building components. We examine each program element to define what it does, what it needs, and how it works. We look at the functional relationships between elements to establish efficient plans and processes.

Together with the Building Committee, the design team generated a program document and assigned place-holder budget costs. Design alternatives were considered and multiple configurations were examined to determine the right program mix at a cost the campus could afford. Value based decisions were made to consolidate and direct the decisions toward a design solution.

## Interpretation

We seek to express the project's goals, needs, and wants in a meaningful way to invite discovery, interaction, and exploration of the facility. We choreograph the relationship of the site, program, and architecture to design a solution specific to its place, inviting in its organization, and subtle in its expression.

Through the three preliminary design studies, the team and committee were able to evaluate unique layout options and building configurations to determine if the elements were achieving their functional and programmatic goals. Options were discussed and evaluated to determine the most appropriate design solution.

## Result

Together with everyone involved in the project, we review, evaluate, and question every project component to determine successful alignment with and expression of the campus's history, mission and values.

The final concept design endeavors to incorporate overall project goals into a meaningful design solution, using the configuration, placement and expression of space to enhance the overall student experience. In this case, the final design concept embodies plan layout, site design and building elements from at least two of the preliminary design studies. Feedback from members of the Building Committee significantly guided, influence, and shaped the final concept design of this study.

More than the list above, the intention of this project is to create a new facility in which students can come together. The new Student Union Addition and Renovation will provide ample seating for working, gathering and socializing. Several new collaboration meeting rooms will allow students to gather for group work or study sessions. Student organization spaces will be prominently featured to invite participation, and open directly into the campus living room space. Flexible, multi-purpose, meeting spaces will provide for large gatherings, conferencing, banquets, and receptions. The Student Success Center, Health + Wellness, and Student Union Operations suites will be upgraded, and prominently featured for easy access and accessibility. Overall, spaces are designed to be flexible, multipurpose, and adaptable.





## 2 Project Site

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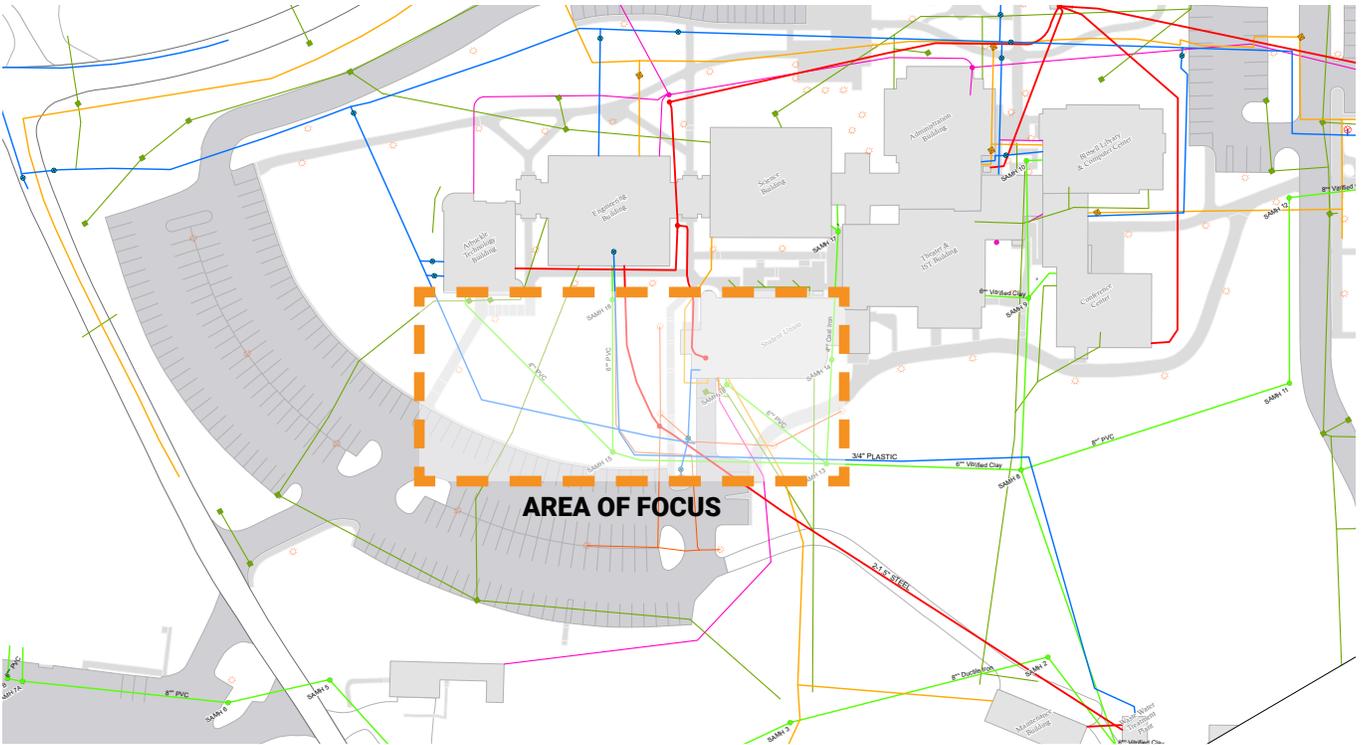
The building legacy of Penn State's New Kensington campus has established a distinct precedent and unique scale that intimately connects the student experience, surrounding landscape, and the University's brand. A restrained elegance and subtlety of expression permeate the campus. The patina of authentic materials exudes the longstanding tradition of academic excellence. The new Student Union should reflect its place in the building lineage, express a reverence for that legacy, and celebrate looking toward the future.

The project site is located immediately adjacent to the existing Student Union Building in an open green space with a full southern exposure. There is more than a sixteen-foot elevation change across the site from the northern highpoint to the southern parking lot. The existing loading dock and service road borrows deeper into the terrain to reach an existing sub-basement level loading dock. Several site utilities cross the service road and diverge across the open green space of the site. The following images and site diagram illustrate these conditions.



Aerial Site Diagram

The project's area of focus lies within the approximate scope boundary line above.



Existing Site Utility Diagram

Additional information about the impact of this feasibility study on existing site utilities can be found in the Civil Site Design Narrative, located in Section 7.



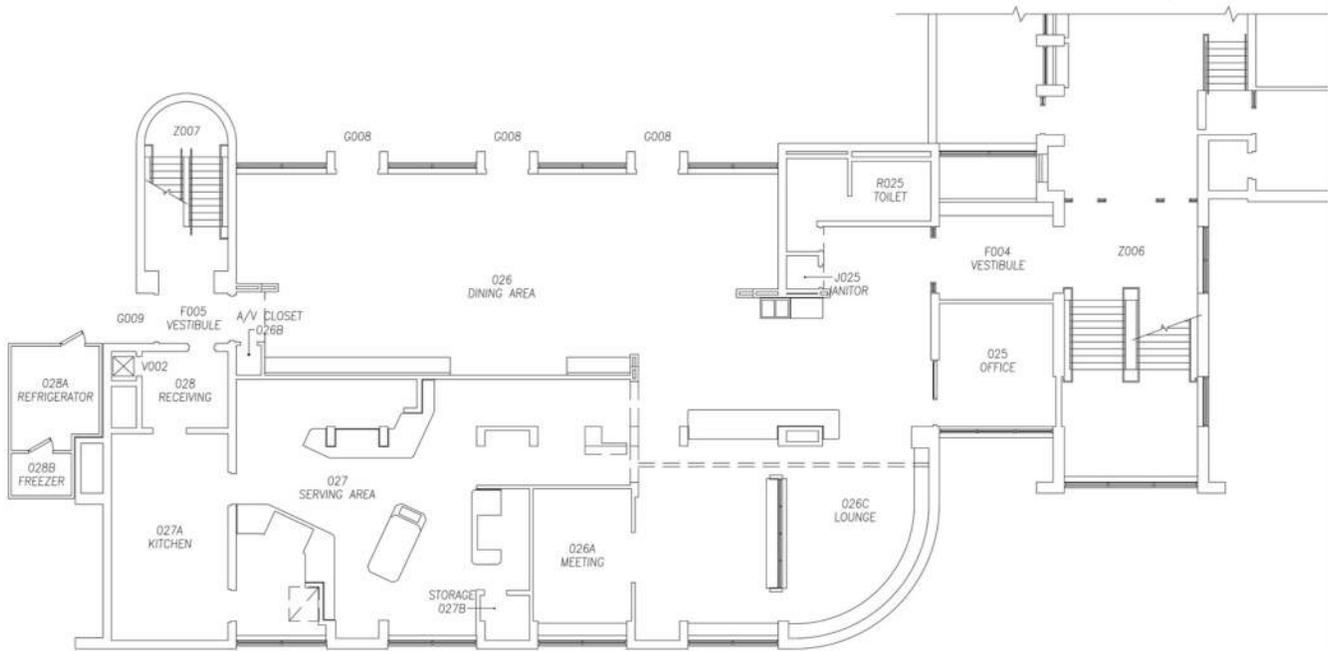
Existing Parking Lot

Exterior view from the Southwest exploring the existing parking lot and open lawn.



Existing Topographic Conditions

This image begins to investigate the challenges of existing topographic conditions on the North side of the parking lot.



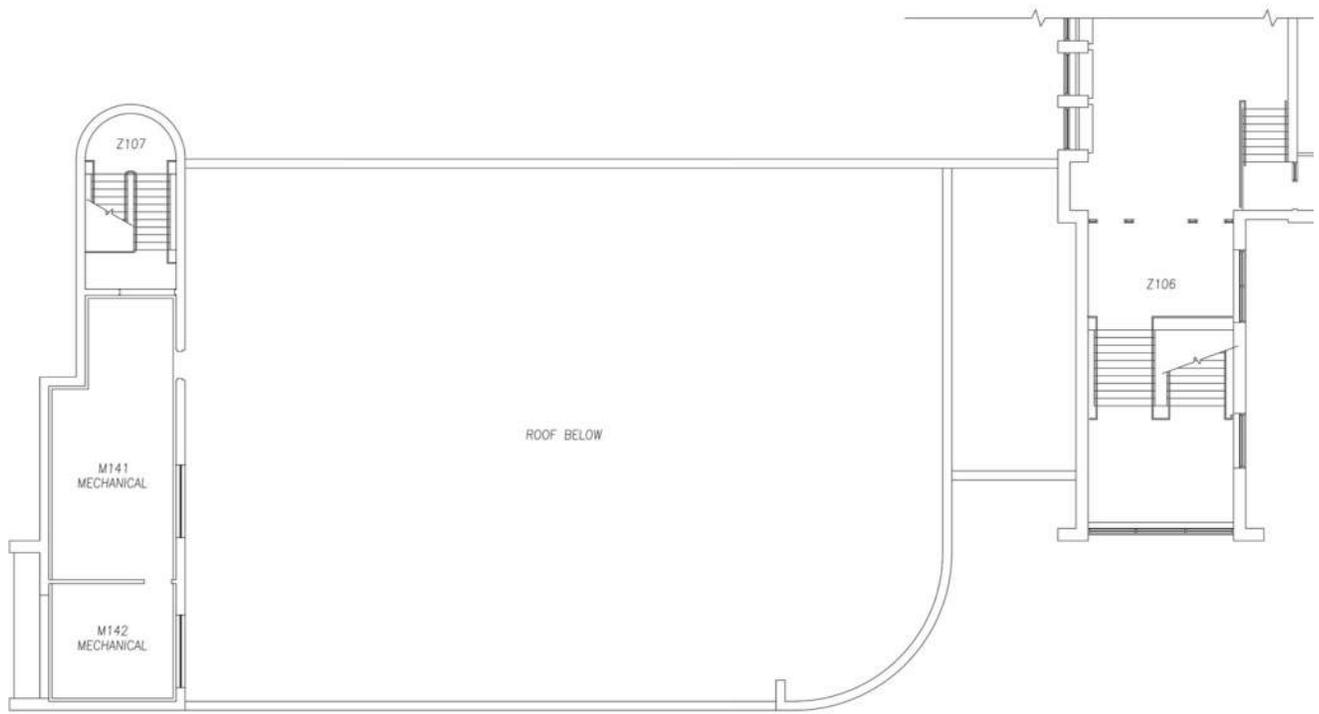
Existing Ground Floor Plan [Upper Level]

The Ground Floor level is currently home to a student dining area and back-of-house food preparation areas.



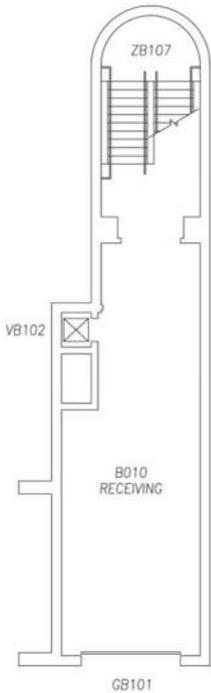
Existing Basement Plan [Lower Level]

The Basement level is currently home to the bookstore and Student Success Center.



Existing First Floor Plan [Roof Level]

The roof level currently has stair access to a mechanical penthouse.



Existing Sub-Basement Plan

The Sub-Basement level is currently home to the loading dock and receiving area.



Existing Student Union Entrance

Exterior view from the South.



Existing Student Union & Adjacent Lawn

Exterior site view looking East.



Existing Loading Dock & Adjacent Walkway

Exterior view from the South.



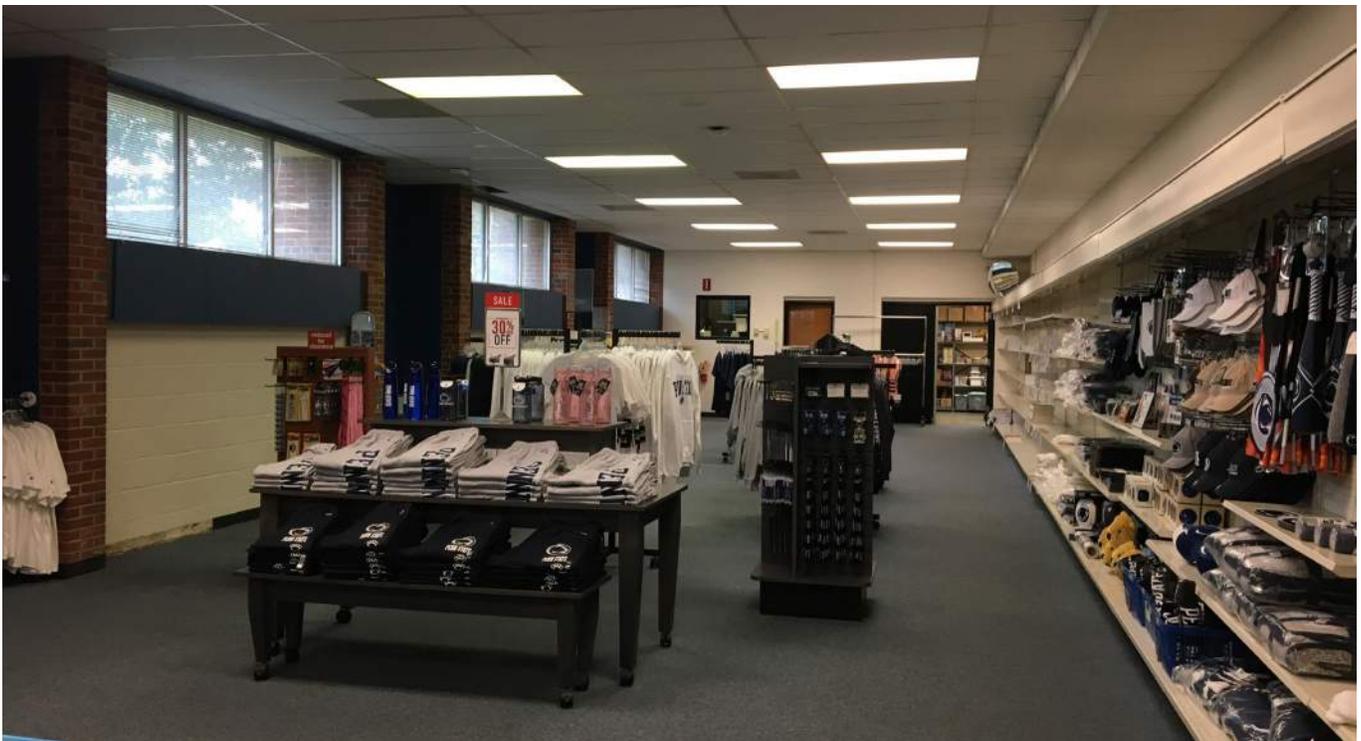
Existing Loading Dock

Exterior view from the South.



Existing Sub-Basement Level

View from inside Loading / Receiving looking South.



Existing Bookstore

Interior view looking West.



Existing Student Success Center

Interior view looking West.



Existing Student Success Center

Interior view looking North.



Existing Dining Area

Interior view looking West.



Just a Lion on a Park Bench

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BR  
O  
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# 3 User Group Interviews

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NORR hosted a series of user group interviews with the Building Committee and key stakeholders as part of the data collection process. These interviews were held with five distinct groups between January 4 & 21, 2020. The purpose of the sessions was to collect data regarding programmatic and planning interests of the stakeholders, in alignment with the University's broader campus strategic initiatives.

We started the process by asking the Building Committee to participate in a "Facts, Needs, Wants, and Goals" exercise to delineate and prioritize a set of project objectives against which we could test the program, plans and designs to come.

# Group 1: Building Committee

## Participants

Kevin Snider  
Jason Bush  
Theresa Bonk  
Adam Dent  
Evan Ditty  
Lynnsey Doane  
Harry Gebhardt  
Marcus Marasco  
Jim Rounce  
Jim Shields  
Randy Tressler  
Carly Davis

## Summary

The group outlined a series of Facts, Needs, Wants, and Goals for this feasibility study, aiming to establish a design baseline that would become part of a larger "living document" - adaptable & flexible to change over time:



### Facts

- Services have poor visibility.
- Limited ADA access.
- FERPA compliance concerns.
- Campus is not inclusive or accessible for our students/employees/visitors.
- Success and retention is key in higher education.
- Growing need for mental health services for college students.



### Needs

- Large Meeting Space.
- Study Rooms.
- Privacy - FERPA compliance.
- Health + Wellness Center that house health clinic & counseling.
- Need appropriate space & message - we care about success.
- Separate Student Life and Student Organization offices.



### Wants

- Visibility.
- Collaboration & Connection.
- Universal Accessibility.
- Health + Wellness Center that meets current needs & addresses future student needs.
- Appropriate Success Center space that shows we value retention & success and career services.



### Goals

- Increase Student Participation
- Student Life - Focused
- Enhance the NK Commuter Student Experience
- Usable, appealing space that makes students want to come inside.
- Improve spaces available for students: groups study/meeting, programming, recreation.

During this workshop, several key questions / design challenges surfaced:



**If students work online, how do we create interest for them to work in the Student Union?**



**What is the on-campus experience of our commuter students?**

Included below are some minutes from the focus group discussion, presented in the order in which they arose:

### **Upon Review of the Existing Building Drawings**

- How do we generate more traffic in our bookstore?
- The existing dining facility will provide adequate seating once the stage and pool table are relocated to the new facility
- Students generally like to choose between a variety of seating / workspace options
- NORR does not recommend vertical expansion of the existing student center
- A fire separation between the existing building and a new building addition will likely need to be created

### **Upon Discussion of the Program**

- Student Life / Engagement: Open space for collaboration between workers needed
- Multi-Purpose Event Space: Group would like the space to be sub-dividable, though Facilities group expressed concerns about room dividers
- Student Government / Clubs / Organizations Spaces: Can be shared in one suite
- Indoor Recreation / Gaming Space: E-Gaming and traditional gaming spaces prefer co-location. A combined living room / lounge / gaming area may work well
- Meeting Spaces: An 'executive-style' meeting room should be provided for more formal meetings
- Health & Wellness: This space may want to be more 'off-stage' due to privacy concerns
- Campus Security: This item was removed from the scope of this project
- Cafe & Cultural Arts: Art should be integrated into various program spaces
- Construction Budget: \$9.5M Project, \$6.5M Construction

# Group 2: Auxiliary Programming

## Participants

Jeremy Lindner  
Jennifer Fularz  
Don Royal

## Summary

In an attempt to narrow down the program for this Feasibility Study, NORR met with key stakeholders to discuss key needs for the Student Union Addition. Included below are some minutes from the focus group discussion, presented in the order in which they arose:

### Upon Discussion about the Bookstore

- PSU is planning for a downsized bookstore in the new addition, with a footprint size more closely aligned with that currently at the Greater Allegheny campus, with the stock room and offices sized closer to those currently at the Brandywine campus. The group indicated that the primary sales driver for this space is retail, for which 750-800 SF should be provided
- The new bookstore shell space will be fit-out in a separate design phase, and will be operated by Barnes & Noble
- The team indicated that one of the challenges of the current bookstore layout relates to the building receiving / storage area
- The storage room should be designed to accommodate approximately 700 book orders, stocked for student pick-up. The group noted a trend moving toward more digital textbook resources
- The ideal bookstore location will be in the line of traffic with high visibility and easy way-finding

### Upon Discussion about Food Services

- NORR indicates that a reconfiguration of the Loading / Receiving area in the new Student Union Addition would be a benefit when compared to existing facility food operations
- The group brought forth logistical, safety, and sanitation concerns about the existing dumbwaiter in the loading area, stating that a service elevator would be the preferred method of vertical food transportation. The team noted that there have been no issues at the Greater Allegheny campus, where staff/students, food service operations, and bookstore operations share an elevator
- Primary food service operation is between 10 am - 2 pm
- Reconfigurations of the existing food prep area would allow for a new office space and for new food storage

- It was noted that Housing & Food Services (HFS) requires a physical separation between student circulation and HFS spaces

## Upon General Discussion

- The group expressed concerns about continuous operation of facility services during construction. Phasing will have to incorporate spaces which must remain operational during construction, with particular attention to temporary and permanent program relocations
- Concerns were brought forth about the crossing of outdoor pedestrian circulation and delivery / receiving traffic at the Loading area. These concerns could be mitigated through careful landscape / civil site design strategies

# Group 3: Academic Career & Success Center

## Participants

Lauren Abersold  
Jason Bush  
Lynnsey Doane  
Ruth Ann Herstek

## Summary

NORR met with faculty & staff from the Academic Career & Success Center in order to gather data on current operations and future visions. Included below are some minutes from the focus group discussion, presented in the order in which they arose:

### Upon Discussion about the Academic Career & Success Center

- Hours of Operation are Monday - Friday, 8am - 5pm
- Students arrive in the suite and check-in
- There is a small waiting area outside of the testing rooms
- Team discussed current quantities of furniture to describe scale of space
- There are currently 4 computers provided in this space, which can be used for printing
- The AC&SC also uses these computers for advising, including student assistance for course registration
- There are currently 9 student-employees working within the AC&SC

### Upon General Discussion

- The group requested that a new suite configuration would include more natural daylight
- Visibility of the Center is a priority
- The new AC&SC ideally would include four multi-function rooms, used for meetings, interviews, overflow testing, and collaborative study. These rooms should be accessible both from inside the suite and from the public corridor for use by students after-hours. Wall-mounted TVs should be available for use in these spaces
- A kitchenette should be included to help accommodate visiting employers between interviews. It should include a full-size refrigerator, sink, microwave, coffee station, and small table for four people
- There should be three workstations near the entrance, one a Welcome Desk, and two for student workers

- The group mentioned a desire to hold workshops of 15-20 attendees with 'full technology setup' available
- The group has would prefer an additional 2 computer workstations on top of the existing count, for a total of 6 available
- Smaller, mobile table furniture is preferred for ease of room reconfiguration

# Group 4: Student Affairs

## Participants

Jean Boda  
Jason Bush  
Theresa Bonk  
Evan Ditty  
Paula Dove  
Kendra Kitko  
Marcus Marasco  
Stamatia Milburn  
Jim Shields

## Summary

To obtain feedback on preliminary program documents, NORR met with the Student Affairs group for discussion of program preferences. Included below are some minutes from the focus group discussion, presented in the order in which they arose:

### Upon Discussion of Meeting Spaces

- A kitchen is not required for the Multi-Purpose space, but a catering 'staging' room is. NORR noted that Student Affairs hosts a number of catered events each year
- An AV / IT closet should be provided to support these spaces
- If the Multi-Purpose room can be subdivided, a 'large' meeting room can be eliminated from program and replaced with a 'medium' meeting room
- White Boards should be provided in meeting spaces

### Upon Discussion of Student Organizations

- A reception space in this suite will not be necessary
- Proximity & visibility are important. The group shared that there are usually up to 10 people hanging out in this space at once
- Lockers for the student organizations would be a plus

### Upon Discussion of the Recreation / Gaming Space

- The Campus Living Room should include a variety of seating types including soft, comfortable seating

## Upon Discussion of the Health & Wellness Program

- One exam room and one toilet room are necessary
- Storage space for CPR 'dummies', event equipment, and food storage was requested
- The Waiting area should have 5 guest chairs
- The Reception area should be HIPAA compliant and include a student workstation
- A Counselor's office with a desk and two guest chairs should be provided
- An Exam Room of 120 SF should have lockable millwork for medicine storage

## Upon General Discussion

- The Student Life / Operations space should have two offices
- The group prefers an adjacency of Student Affairs and Health & Wellness

# Group 5: Student Government Association & Student Representatives

## Participants

Mackinly Adams  
Khasam Alamili  
Jason Bush  
Ian Callender  
Brady Claycomb  
John Culhane  
Evan Ditty  
Kathy Durkin  
Kendra Kitko  
Gabrielle Kriley  
Marcus Marasco  
Alex Smith  
John Stafford

## Summary

NORR sought insight from this group to develop the building program. Included below are some minutes from the focus group discussion, presented in the order in which they arose:

### Upon Discussion of Student Government & Club / Organization Spaces

- The group liked the idea of 'garage doors' opening into the Student Organization Suite
- The Student Organization Suite should include three offices
- Storage space should be maximized

### Upon Discussion of Indoor Recreation / Gaming Space

- Students would like more of an 'open' E-gaming space than that provided at Hazelton campus
- Students liked the idea of an open lounge for hanging out and relaxing, with visibility to other interior programs and abundant views to the exterior
- Students thought the Campus Living Room would be a great space to host gaming events

### Upon General Discussion

- Students requested an outdoor space for recreation and relaxation

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# 4 Building Program

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After developing and fine-tuning the proposed project program through a series of collaborative exercises, NORR arrived at the following program document which ultimately reflects what is presented in the Final Design Concept in Section 6. The final renovation and new construction combined scope of work comes out to just over 31,100 SF; however, the Ground Floor Plan café area remains largely untouched except for sprinkler installation and a new refrigerator/freezer.

Given the current cost analysis, the program may wish to consider a reduction of new square footage to meet the intended overall project budget when moving forward. A more detailed cost estimate and during the Schematic Design Phase of the project may provide more insight. A recommended reduction of 300-400 square feet will bring the new construction total to closer to 14,000 gross square feet with an anticipated savings of \$125,000. Reductions to square footage may be realized with limited affect to function and appearance; such as, reducing the meeting rooms at the Ground Floor Balcony and contracting the line of the south façade by several feet overall.

Program Code	Room Num.	Program Elements	Existing	Wish List Program	Light Renovation	Heavy Renovation	New Construction	Notes
Group		Room Type	Student Union	ASF / Room	ASF per Room	ASF per Room	ASF per Room	ASF = Assignable Square Feet; Occ = Occupant
1.00		<b>Food Service</b>	<b>4,643</b>	<b>4,845</b>	<b>4,845</b>	<b>0</b>	<b>0</b>	
1.01		<b>Dining Services</b>	<b>2,817</b>	<b>3,019</b>	<b>3,019</b>		<b>0</b>	
		Queueing / Point of Sale	0	0	0		0	
	026	Seating	2,170	2,170	2,170		0	
	026C	Lounge	647	647	647		0	
		Office	0	202	202		0	use MTG 025 for new office, min. work req'd
		Meeting	0	0	0		0	
1.02		<b>Servery</b>	<b>1,191</b>	<b>1,191</b>	<b>1,191</b>		<b>0</b>	
	027	Serving Area	1,191	1,191	1,191		0	
1.03		<b>Kitchen</b>	<b>540</b>	<b>540</b>	<b>540</b>		<b>0</b>	
	027A	Food Production	347	347	347		0	
		Catering Support	0	0	0		0	
	027B	Storage	31	31	31		0	
	028A	Refrigerated Storage - Walk-in	125	125	125		0	use exst 026A - new built in?
	028B	Refrigerated Storage - Freezer	37	37	37		0	use exst 026A - new built in?
1.04		<b>Scullery / Dishwashing</b>	<b>0</b>	<b>0</b>	<b>0</b>		<b>0</b>	
		Dish Drop	0	0	0		0	
		Dish Washing	0	0	0		0	
		Pot Wash	0	0	0		0	
		Digester	0	0	0		0	
		Storage	0	0	0		0	
		Trash / Recycling	0	0	0		0	
1.05		<b>Kitchen Support</b>	<b>95</b>	<b>95</b>	<b>95</b>		<b>0</b>	
		Locker Room with WC	0	0	0		0	
		Chef Office	0	0	0		0	
		Office	0	0	0		0	
		Workroom	0	0	0		0	
		Linens / Uniforms / Laundry	0	0	0		0	
		Janitor Closet / Cleaning Supplies	0	0	0		0	
		Recycling Holding	0	0	0		0	
		Cart / Can Wash	0	0	0		0	
	028	Receiving	95	95	95		0	
2.00		<b>Retail</b>	<b>2,429</b>	<b>1,170</b>	<b>0</b>	<b>1,094</b>	<b>0</b>	
2.01		<b>Coffee Shop</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
		Servery						
		Prep						
		Storage						
2.04		<b>Convenience Store</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
		Grocery - Dry Goods- C Store	0	0	0	0	0	
		Grocery - Fresh Food	0	0	0	0	0	
		Storage	0	0	0	0	0	
2.05		<b>Bookstore</b>	<b>2,429</b>	<b>1,170</b>	<b>0</b>	<b>1,094</b>	<b>0</b>	renovated on basement level
		Point of Sale	0	0	0	0	0	
	B007	Retail	1,987	750	0	514	0	
		Textbooks	0	0	0	0	0	
		Server	0	0	0	0	0	
	B008	Office	177	120	0	107	0	
		Cash Room	0	0	0	0	0	
	B009	Storage	265	300	0	473	0	
2.06		<b>Vending</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
		Vending Machines	0	0	0	0	0	
		ATM	0	0	0	0	0	
2.06		<b>Mail</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>	
		Student Mailboxes	0	0	0	0	0	
		Faculty Mailboxes	0	0	0	0	0	
		Package Receipt / Hold	0	0	0	0	0	
		Bulk Mailing	0	0	0	0	0	
		Office	0	0	0	0	0	
3.00		<b>Assembly</b>	<b>0</b>	<b>5,470</b>	<b>0</b>	<b>0</b>	<b>3,026</b>	
3.01		Multi-Purpose Event Space	0	2,250			1,950	subdividable into two spaces
		Stage	0	150			0	could be in demountable and stored
		Pre-Function	0	250			0	could be in common space
		Catering Kitchen/Staging Area	0	150			193	could double as green room
		Storage	0	250			303	
		AV	0	50			0	

3.02		Executive Style Meeting Room		0			0	not req'd. 02.04 mtg
3.03		Meeting Room - Small	0	225			210	
3.04		Meeting Room - Medium	0	375			370	
3.05		Meeting Room - Large	0	0			0	subdivided multipurpose = (2) large meeting rooms
3.06		Break-Out / Study Room		180			0	see Academic & Career Success Center
3.07		Break-Out / Study Room		180			0	see Academic & Career Success Center
3.08		Break-Out / Study Room		180			0	see Academic & Career Success Center
3.09		Break-Out / Study Room		180			0	see Academic & Career Success Center
<b>4.00</b>		<b>Recreation</b>	<b>0</b>	<b>4,040</b>	<b>0</b>	<b>0</b>	<b>1,291</b>	
4.01		Lving Room / Collaboration Space		1,500			810	
4.02		Non-Traditional Lounge		225			0	Could be backfill space / sometimes prefer location away from main space
4.03		E-gaming		225			221	
4.04		Traditional Gaming		1,040			260	260 SF = space required for 1 pool table; 2 pool tables and 2 ping pong tables
4.05		<b>Cultural Arts Center</b>		<b>1,050</b>			<b>0</b>	
		Gallery		600			0	
		multi-purpose room/lecture		450			0	
<b>5.00</b>		<b>Student Organizations</b>	<b>202</b>	<b>2,034</b>	<b>0</b>	<b>0</b>	<b>1,852</b>	1.2 grossing internal circulation factor applied to net suite square footage
5.01		<b>Student Organizations / Groups / SGA</b>	<b>202</b>	<b>1,695</b>			<b>1,543</b>	
		Open Work / Reception	0	90			0	with lockers
		Workroom	0	200			362	
	025	SGA Office	202	120			120	
		SGA Workstations	0	240			240	
		Student Org Office 1	0	120			120	
		Student Org Workstations	0	480			480	
		Student Org Office 2	0	120			120	
		Meeting Room	0	225			0	
		Storage	0	100			101	
<b>6.00</b>		<b>Administrative Suites</b>	<b>0</b>	<b>1,116</b>	<b>0</b>	<b>0</b>	<b>680</b>	1.15 grossing internal circulation factor applied to net suite square footage
6.01		<b>Student Affairs</b>	<b>0</b>	<b>0</b>		<b>0</b>	<b>0</b>	
		Open Work / Reception	0	0		0	0	
		Office 1	0	0		0	0	
		Office 2	0	0		0	0	
		Office 3	0	0		0	0	
		Office 4	0	0		0	0	
		Meeting Room	0	0		0	0	
		Storage	0	0		0	0	
6.02		<b>Student Union Operations</b>		<b>660</b>			<b>567</b>	
		NINJA Bar		100			77	Need Information Now Just Ask
		Student Life Office		140			140	
		Student Life Admin		120			127	
		Student Life GA Interns		240			192	workstations
		Storage		60			31	
6.03		<b>Campus Security</b>		<b>310</b>		<b>0</b>		
		Public Safety Manager Office		120		0	0	
		Outer office desks		160		0	0	workstations
		Locable Storage		30		0	0	
<b>7.00</b>		<b>Academic Suites</b>	<b>2,247</b>	<b>4,248</b>	<b>0</b>	<b>3,229</b>	<b>1,043</b>	1.15 grossing internal circulation factor applied to net suite square footage
7.01		<b>Academic &amp; Career Success Center</b>	<b>2,247</b>	<b>2,950</b>		<b>2,808</b>		renovated on basement level
	B005A	Testing Center	114	210		198		enclosed testing rooms with glass door
	B005	Open Work / Reception	1,286	1,100		898		removed circulation grossing factor from existing square footage
		Office Professional staff	192	140		140		
		Office Professional staff	128	140		140		
		Office Professional staff	185	140		140		
		Office Professional staff	138	140		148		
		Office Regional Employer Coordinator	98	0		0		not req'd (02.04 mtg)
		Office Graduate Students/ Interns	86	120		218		
		Meeting/interview/study room		720		813		
		Resource library						shelving in common space
		Student Computers						5-6 stations in common spcae
		Kitchenette		100		35		
		Copy/Print		60		33		
	B006	Storage	20	80		45		
7.01		<b>Health &amp; Wellness Center</b>		<b>744</b>			<b>869</b>	

		Nurses Office		180			180	1 staff, 1 work study with room for two visitors chairs, large file cabinet and bookshelf.
		Exam room 1		120			120	
		Exam room 2		0			0	not req'd (02.04 mtg)
		Restroom 1		64			70	ADA minimum single use restroom
		Restroom 2		0			0	not req'd (02.04 mtg)
		Storage		120			59	for CPR mannikinns, etc
		Counselors Office		140			140	
		Waiting/reception		120			300	includes desk space for students to complete paperwork.
8.00		<b>Back of House</b>	<b>721</b>	<b>500</b>		<b>0</b>	<b>329</b>	
8.01	B010	Receiving	519	300	519	0	329	
		Loading Dock		200		0	0	
		Truck Bay		0		0	0	
		Compactor Bay		0		0	0	
		Receiving Office		0		0	0	
		Storage		0		0	0	
	B004	Break room	202	0		0	0	

<b>Net Assignable Square Feet</b>	<b>10,242</b>	<b>23,423</b>	<b>4,845</b>	<b>4,323</b>	<b>8,221</b>
Grossing Factor	1.63	1.5	1.5	1.2	1.75
<b>Gross Square Feet</b>	<b>16,723</b>	<b>35,134</b>	<b>7,268</b>	<b>5,188</b>	<b>14,386</b>
Cost per Square Foot		\$0	\$50	\$200	\$350
<b>Budget Building Cost</b>		<b>\$0</b>	<b>\$363,375</b>	<b>\$1,037,568</b>	<b>\$5,035,240</b>

\$6,436,183 TOTAL New + Renovated Space  
 31,109 TOTAL Square Feet

10.00		<b>Grossing Factor Spaces</b>	<b>853</b>				
		Mechanical Room	542				
		Electrical Room					
		Plumbing Room					
		Fire Pump Room					
		Tele/Data Room					
		AV Closet(s)					
	JB004/J025	Janitor Closet	32				1 on each floor
		Passenger Elevator					
		Service Elevator					
	RB004	Men's Toilet Rooms	139				
	R025	Women's Toilet Rooms	140				
		Unisex Toilet Room					

# PRO

# NOINK



# 5 Preliminary Design Concepts

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# Option 1

## Overview

Design Option 1 explores the construction of a new Student Union building addition, providing 14,314 SF of new space for students at the New Kensington campus. This first option explores a North-South building configuration and connects directly the existing Student Union building.

In this configuration, the two-story building entrance faces West to allow for easy access from the parking area and adjacent lawn. Immediately inside the entrance is the Campus Living Room and visibility to the Student Organization suite. The existing bookstore and Student Success Center in the existing building would be reconfigured in an effort to increase spatial, visibility, & efficiency concerns as outlined in early programming meetings. The loading dock area is also brought up from the Sub-Basement level to the Basement [Lower] level to mitigate logistics & material management concerns.

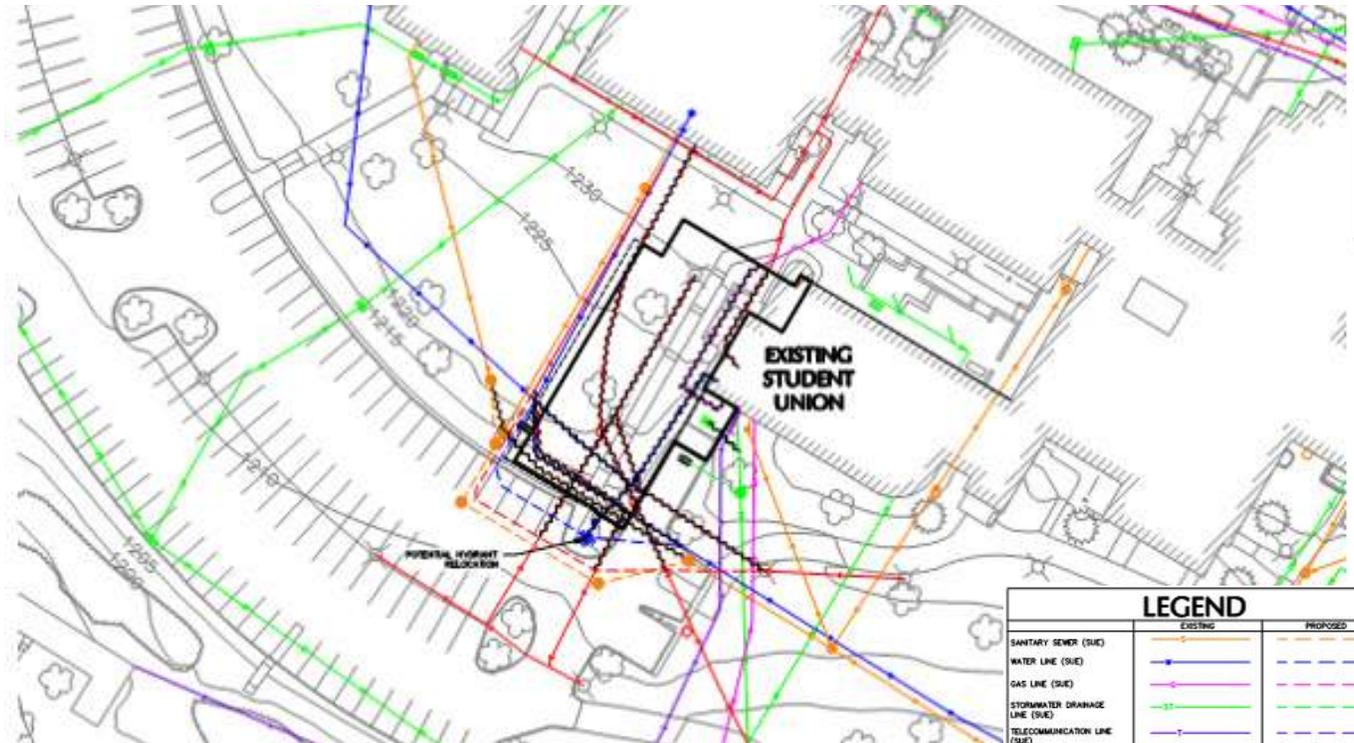
On the upper level, a large multi-purpose space, Student Union Operations, and a meeting room are provided within walking distance to the existing dining facility.

The multi-purpose space takes advantage of a large west-facing glass facade, while the brick exterior speaks a similar language to the existing, adjacent campus buildings.



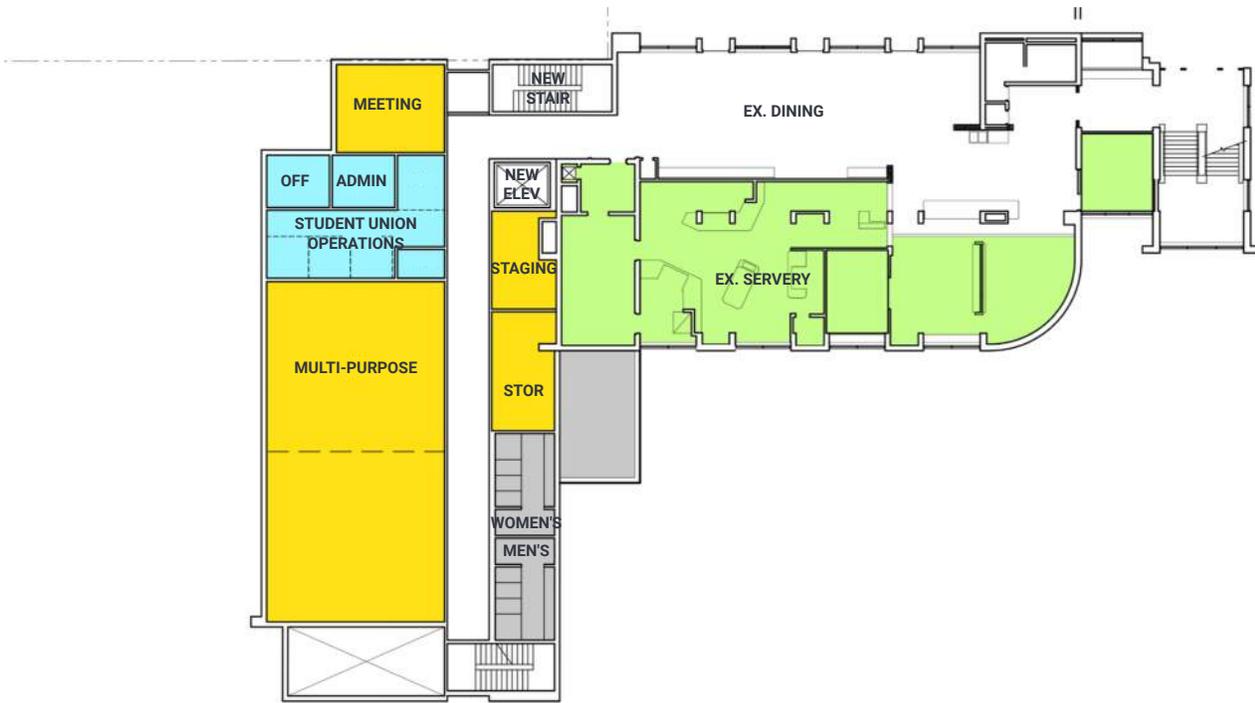
Proposed Landscape Site Plan

The existing lawn is regraded to accommodate ADA pedestrian access to the building, and to help manage rainwater movement and filtration. Other proposed site elements include new shade trees along the parking area and an entry plaza at the building entrance, while new paths are tied into existing site features.



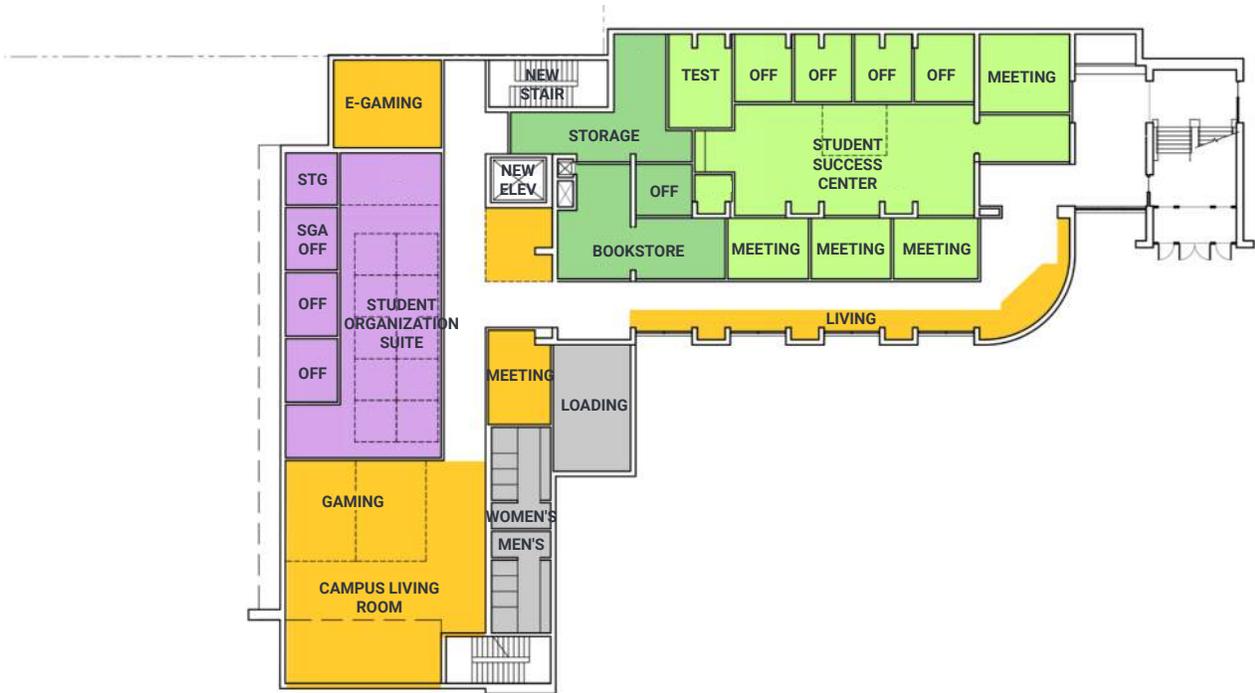
Proposed Utility Plan

New construction in this area would require work to relocate existing water, sanitary, gas, & electric infrastructure, impacting existing pavement.



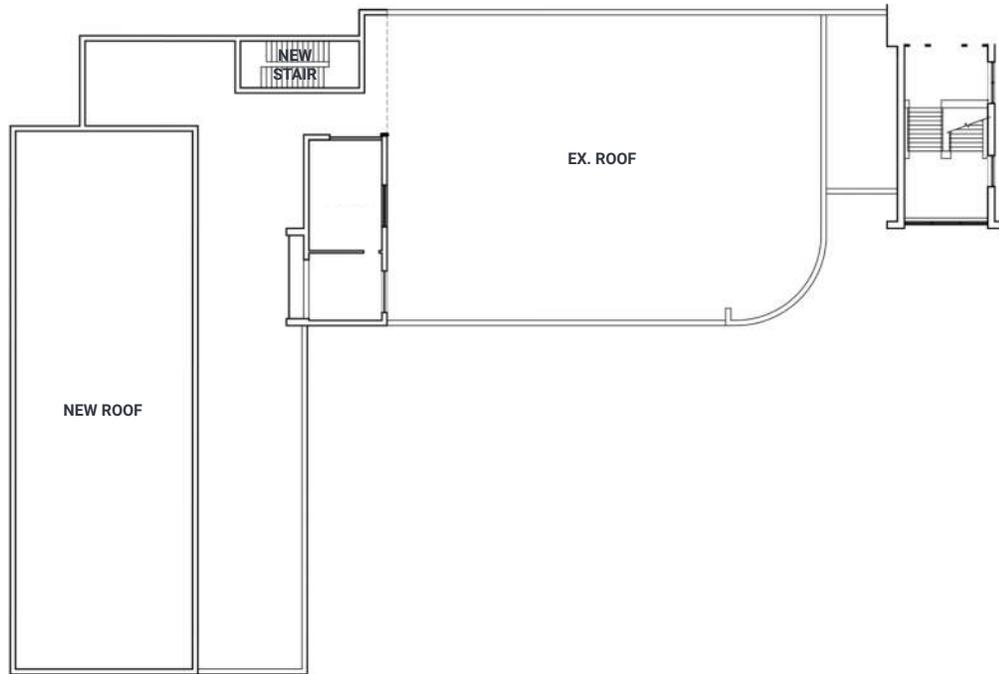
Proposed Ground Floor Plan [Upper Level]

A new multi-purpose space takes advantage of West-facing views of the newly-graded lawn.



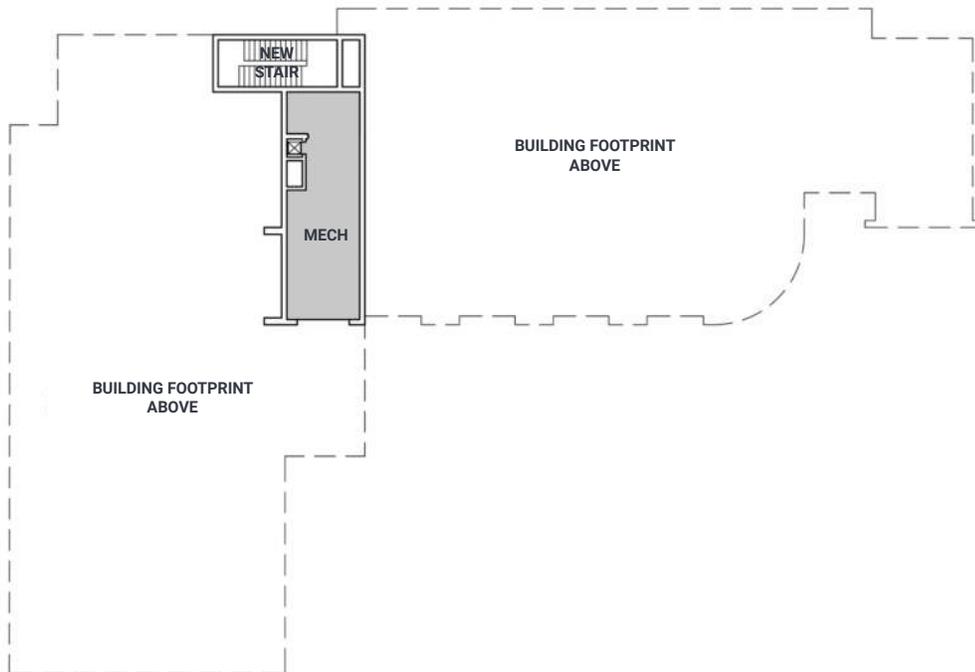
Proposed Basement Plan [Lower Level]

By relocating & reconfiguring the existing bookstore & Student Success Suite, a new circulation corridor is created along a window wall in the existing building, where existing clerestory windows are replaced with full-height glass to admit daylight deep into Student Success spaces.



Proposed First Floor Plan [Roof Level]

A new egress stair on the North facade provides access to existing & new roof conditions.



Proposed Sub-Basement Plan

A reconfigured loading area (now moved up to the lower level) is gained as additional mechanical space.



Aerial View

Views from the building to the adjacent lawn are maximized.



West Approach

Views from the building to the adjacent lawn are maximized.



### West Approach

Views from the building to the adjacent lawn are maximized.



### View of Entrance From West Approach

A new entry plaza sits next to the prominent corner entry.



### Loading Area

The existing loading area is moved up from the Sub-Basement Level to the Basement [lower] Level.



### Loading Area

The existing loading area is moved up from the Sub-Basement Level to the Basement [lower] Level.



### Upper Courtyard

An upper level building entry ties into the existing upper courtyard path system.



### Interior - View of Student Organization Suite from Entry

The new Student Organization Suite overlooks a Campus Living Room directly inside the lower level entrance.



## Option 2

### Overview

Design Option 2 explores the construction of a new Student Union building addition, providing 14,597 SF of new space for students at the New Kensington campus. This second option explores an East-West building configuration and connects directly the existing Student Union building.

In this configuration, a single-story building entrance faces South to maximize daylight and views across to student housing. Immediately inside the entrance is a double-height, glazing-enclosed Campus Living Room, next to Student Union Operations and the Student Organization suite. Similar to Option 1, The existing bookstore and Student Success Center in the existing building would be reconfigured in an effort to increase spatial, visibility, & efficiency concerns as outlined in early programming meetings. The loading dock area is also brought up from the Sub-Basement level to the Basement [Lower] level to mitigate logistics & material management concerns.

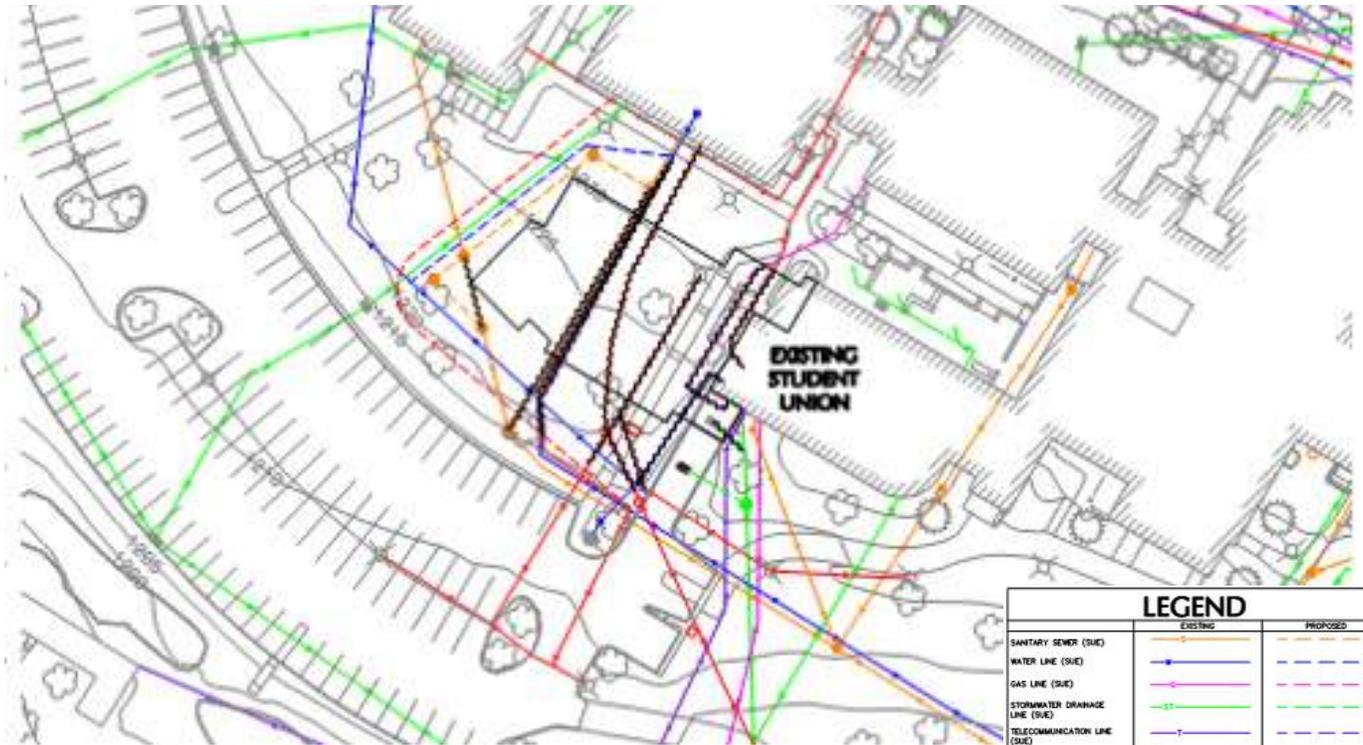
On the upper level, a large South-facing multi-purpose room and a series of meeting rooms are provided within walking distance to the existing dining facility.

The building exterior introduces a lighter material palette and an increase in glazing from that of Option 1.



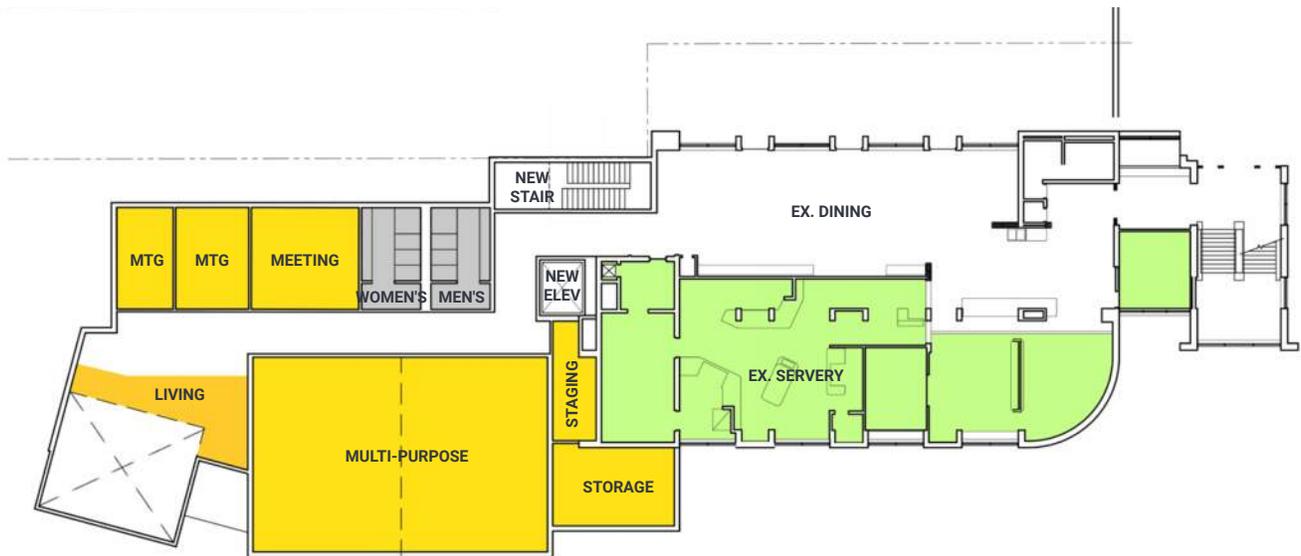
Proposed Landscape Site Plan

The existing lawn is regraded to accommodate ADA pedestrian access to the building, and to help manage rainwater movement and filtration. A new walkway engages with the topography while new building entrances to the upper level are introduced at the North and Northwest corner.



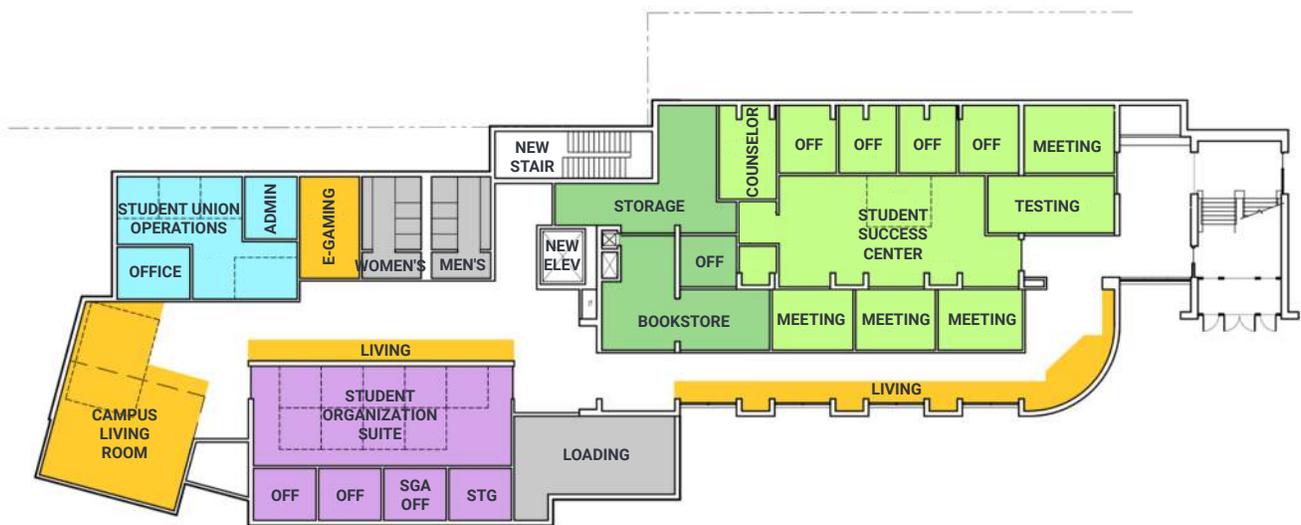
Proposed Utility Plan

New construction in this area would require work to relocate existing water, sanitary, gas, & electric infrastructure, with no impact to existing pavement.



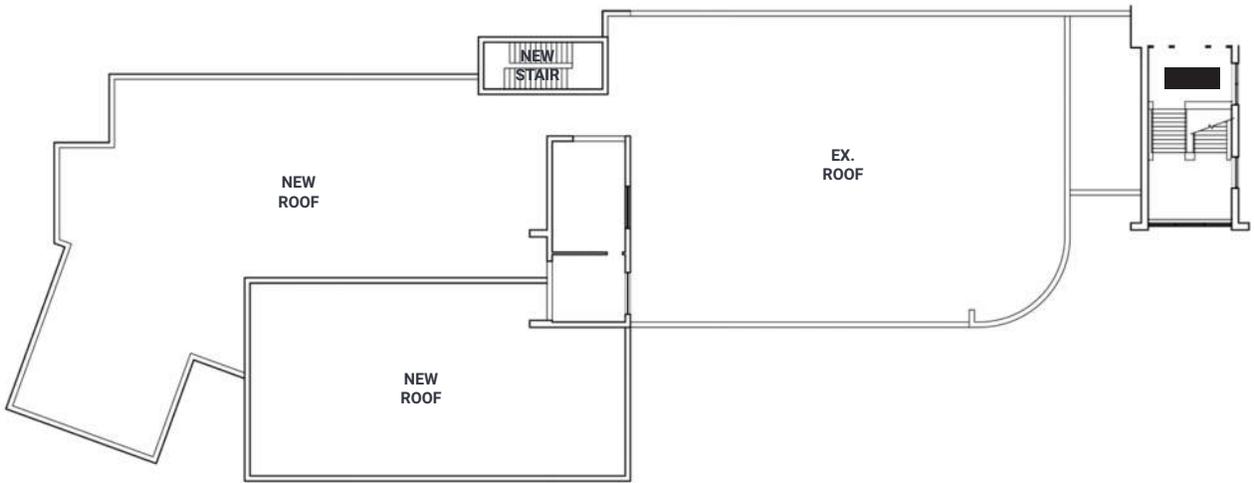
Proposed Ground Floor Plan [Upper Level]

A new multi-purpose space takes advantage of Southern daylight and views of the landscape.



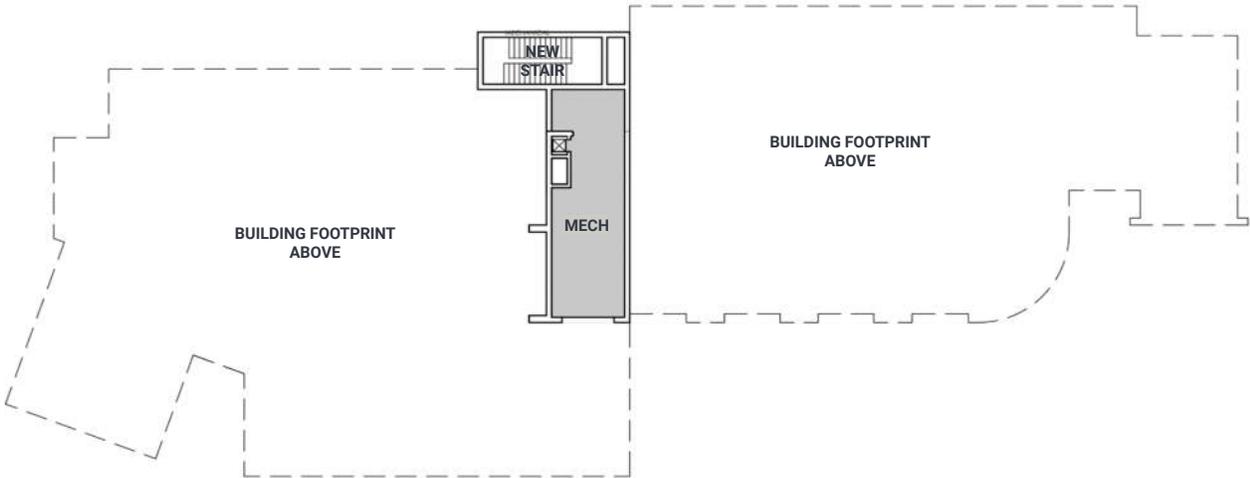
Proposed Basement Plan [Lower Level]

Similar to Option 1, the relocation & reconfiguration of the existing bookstore & Student Success Suite creates a new circulation corridor along a window wall in the existing building, where existing clerestory windows are replaced with full-height glass to admit daylight deep into Student Success spaces.



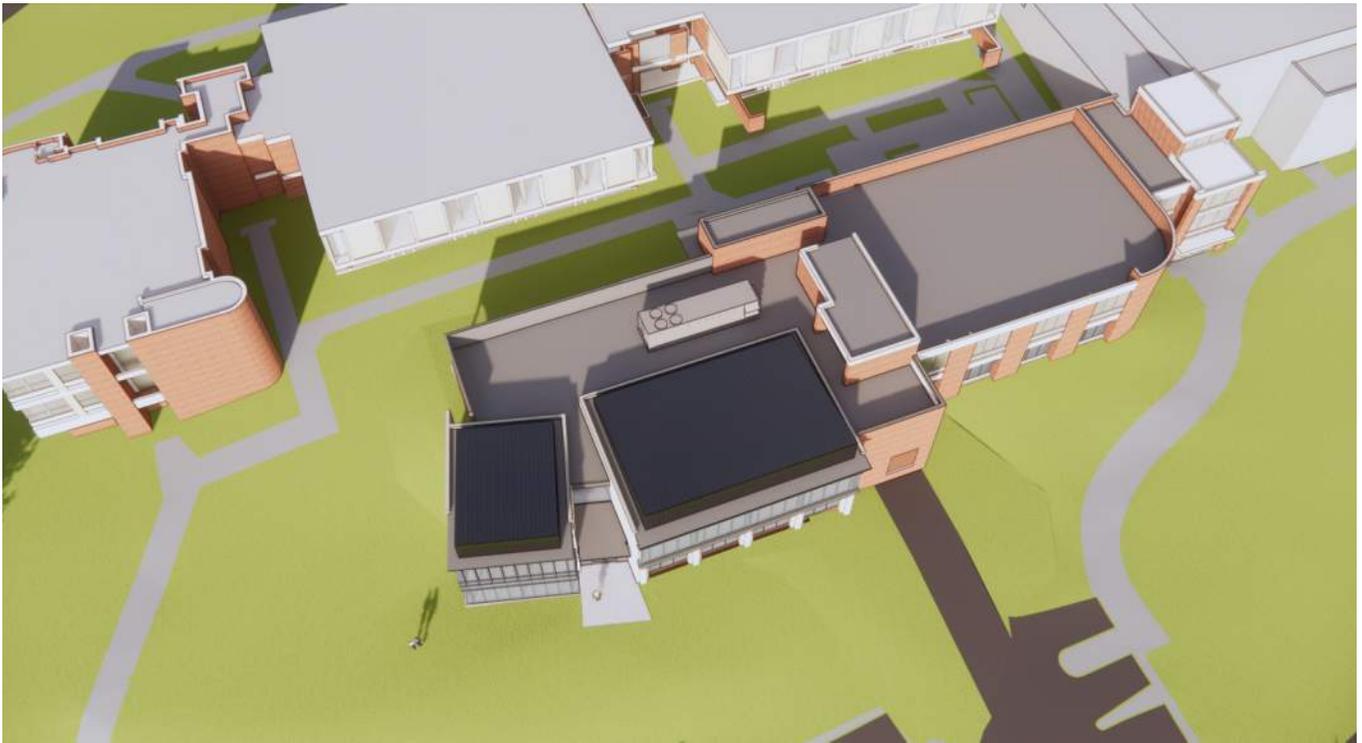
Proposed First Floor Plan [Roof Level]

Like Option 1, a new egress stair on the North facade provides access to existing & new roof conditions.



Proposed Sub-Basement Plan

Like Option 1, a reconfigured loading area (now moved up to the lower level) is gained as additional mechanical space.



Aerial View

Views from the building to the South are maximized.



West Approach

Views from the building to the South are maximized.



West Approach

Views from the building to the South are maximized.



View of Entrance From West Approach

A new entry is slightly recessed into the building's architecture, allowing students to engage with the building before entering it.



Loading Area

Similar to Option 1, the existing loading area is moved up from the Sub-Basement Level to the Basement [lower] Level.



Loading Area

Similar to Option 1, the existing loading area is moved up from the Sub-Basement Level to the Basement [lower] Level.



### Upper Courtyard

An upper level building entry ties into the existing upper courtyard path system. The courtyard space is elongated by the North facade of the new addition.



### Interior - View of Entry

A double-height Campus Living Room sits immediately inside the lower level building entrance, with views into the Student Organization Suite and corridor access to the newly configured bookstore and Student Success Center.



## Option 3

### Overview

Design Option 3 explores the construction of a new Student Union building addition, providing 14,157 SF of new space for students at the New Kensington campus. This third option explores an alternate East-West building configuration and connects directly the existing Student Union building.

In this configuration, a single-story building entrance vestibule faces Southwest, connecting to the adjacent lawn area. Immediately inside the entrance is a double-height, glazing-enclosed Campus Living Room, next to Student Union Operations and the Student Organization suite. Similar to Options 1 & 2, The existing bookstore and Student Success Center in the existing building would be reconfigured in an effort to increase spatial, visibility, & efficiency concerns as outlined in early programming meetings. The loading dock area is also brought up from the Sub-Basement level to the Basement [Lower] level to mitigate logistics & material management concerns.

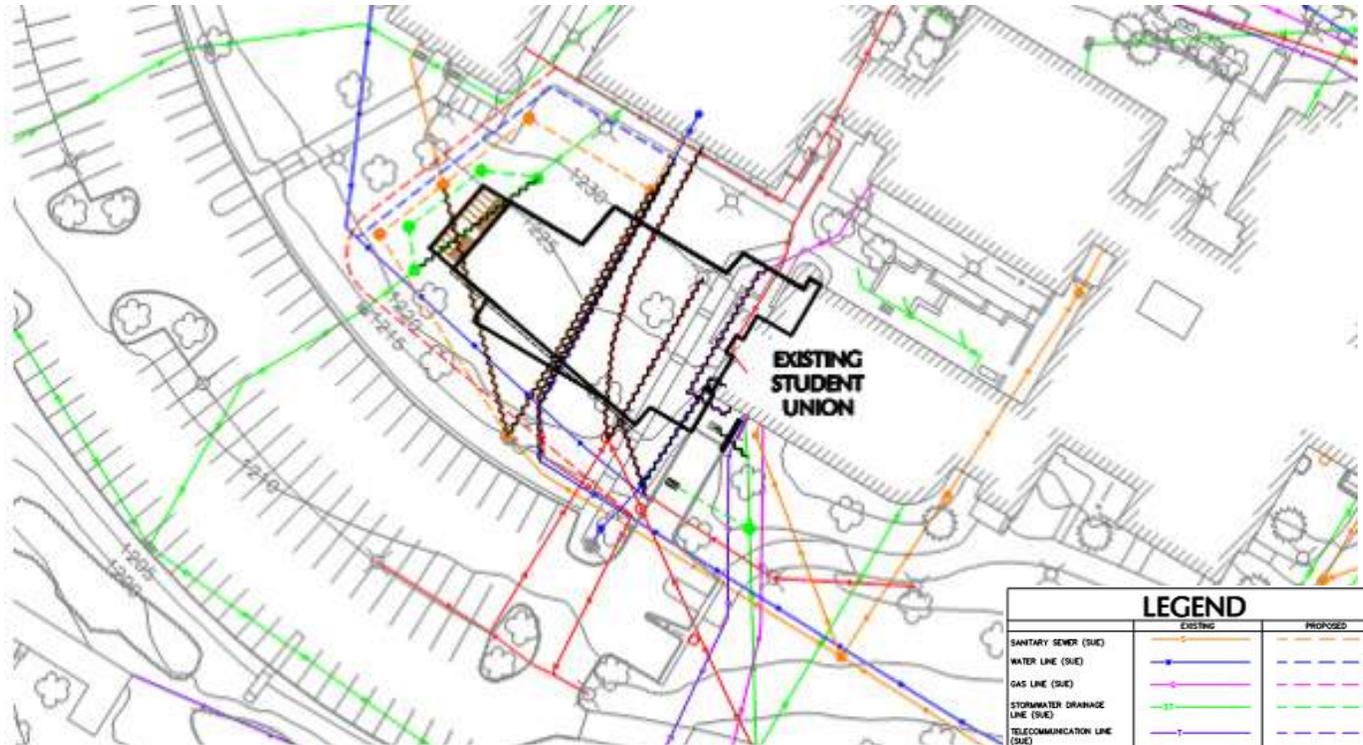
On the upper level, a large South-facing multi-purpose room and a series of meeting rooms are provided within walking distance to the existing dining facility, as are additional seating nooks for student use. A metal-panel-clad interior wall on the West side of the multi-purpose room features glazing into the two-story Campus Living Room below.

The building exterior introduces a new, linear metal panel element that wraps the building to accentuate the spatial massing, while frit-pattern glass and sun shading elements aim to mitigate solar heat gain in with an increased amount of glazing from that of Options 1 & 2. A concrete site stair element connects the lower and upper levels of the topography and provides a semi-sheltered seating space for students.



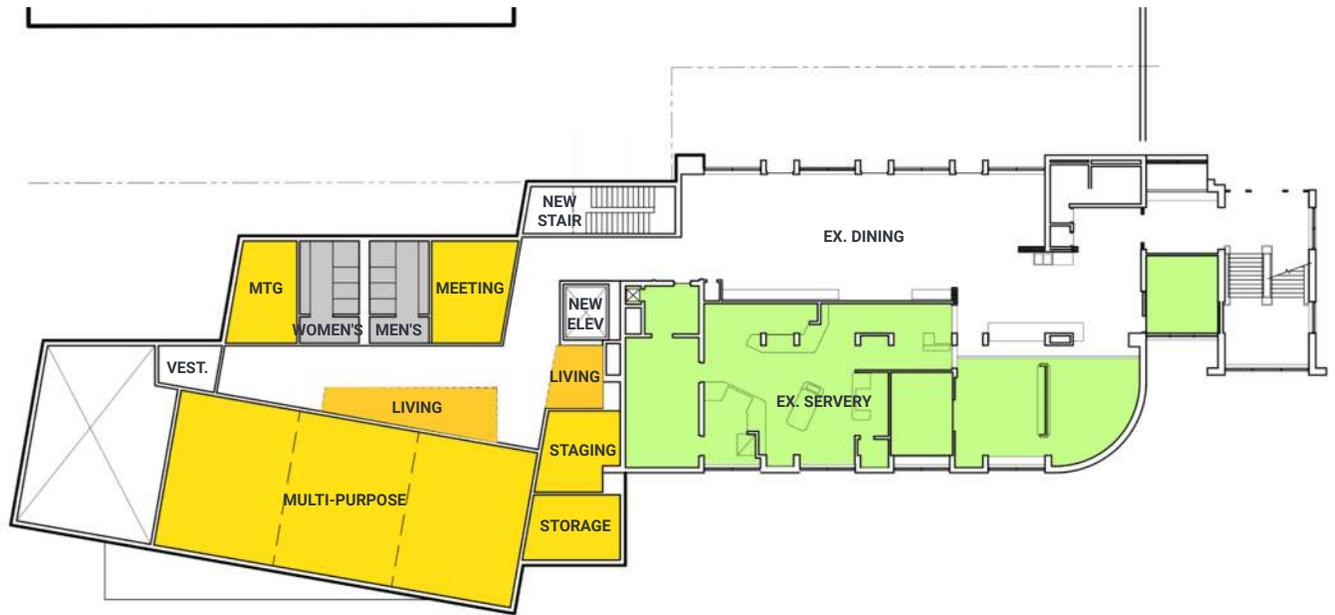
Proposed Landscape Site Plan

The existing lawn is regraded to create a new pathway in alignment with the building entrance, while an ADA ramp is introduced to engage with the topography. Rainwater concerns are mitigated with rain gardens and low-maintenance planting on steeper slopes to help slow rainwater movement.



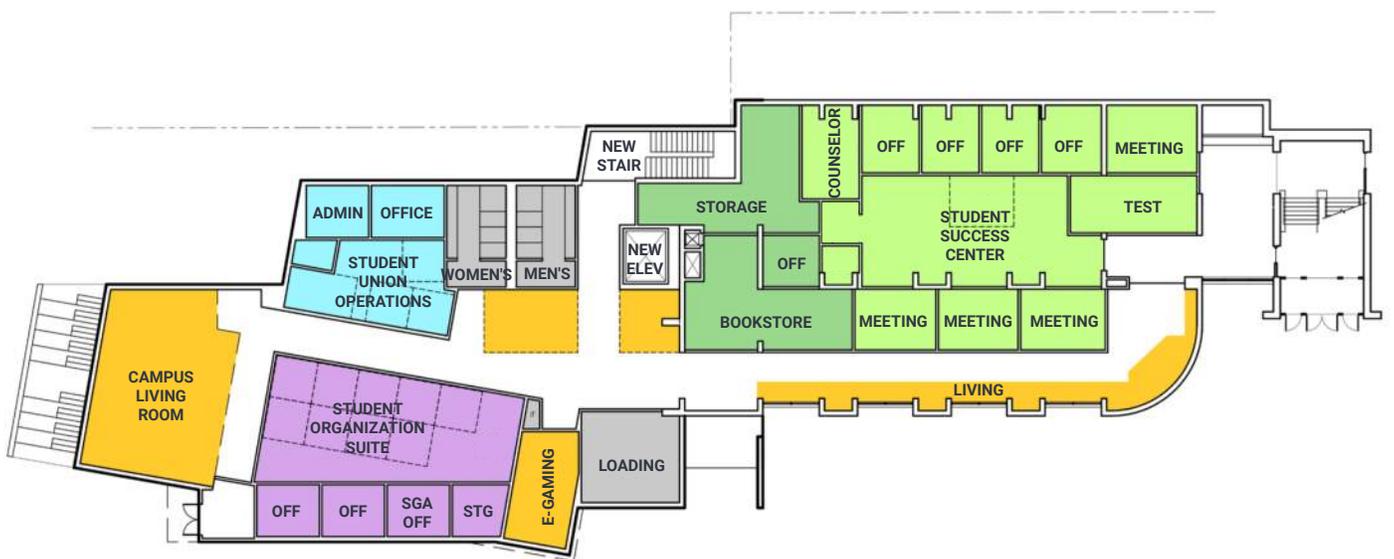
Proposed Utility Plan

New construction in this area would require work to relocate existing water, sanitary, gas, electric, & stormwater infrastructure, with no impact to existing pavement.



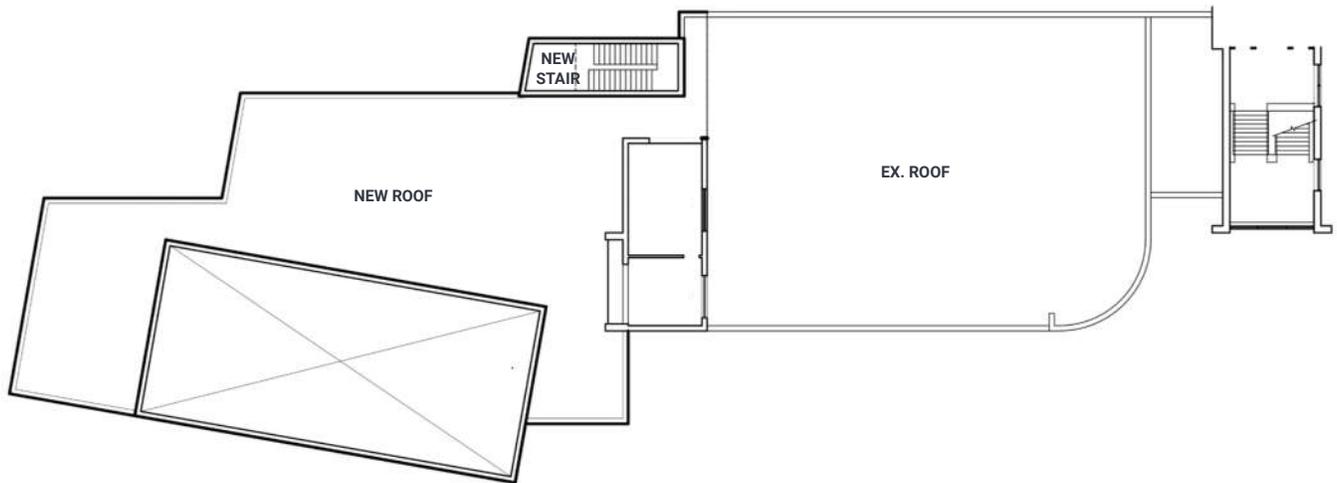
Proposed Ground Floor Plan [Upper Level]

Like Option 2, a new multi-purpose space takes advantage of Southern daylight and views of the landscape.



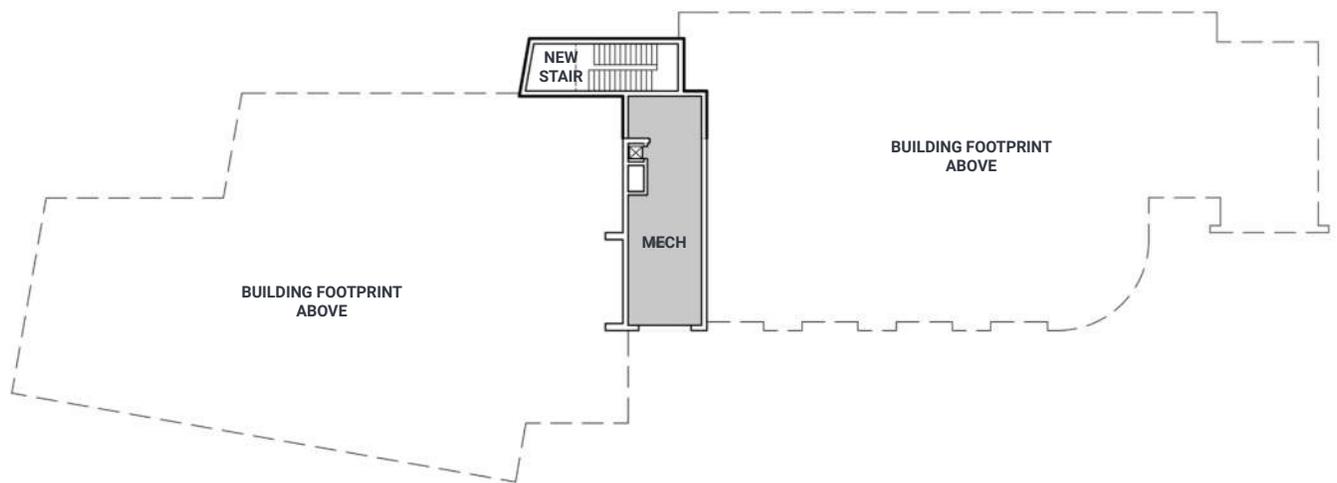
Proposed Basement Plan [Lower Level]

Similar to Options 1 & 2, the relocation & reconfiguration of the existing bookstore & Student Success Suite creates a new circulation corridor along a window wall in the existing building, where existing clerestory windows are replaced with full-height glass to admit daylight deep into Student Success spaces.



Proposed First Floor Plan [Roof Level]

Like Options 1 & 2, a new egress stair on the North facade provides access to existing & new roof conditions.



Proposed Sub-Basement Plan

Like Options 1 & 2, a reconfigured loading area (now moved up to the lower level) is gained as additional mechanical space.



Aerial View

Views from the building to the South and West are maximized.



West Approach

Views from the building to the South and West are maximized.



West Approach

Views from the building to the South and West are maximized.



View of Entrance From West Approach

The main building entry is highlighted by the language created by the wrapping of an architectural facade element, while a site stair connects the upper and lower areas of the site topography.



### Loading Area

Similar to Options 1 & 2, the existing loading area is moved up from the Sub-Basement Level to the Basement [lower] Level.



### Loading Area

Similar to Options 1 & 2, the existing loading area is moved up from the Sub-Basement Level to the Basement [lower] Level.



### Upper Courtyard

An upper level building entry ties into the existing upper courtyard path system. Like Option 2, the courtyard space is elongated by the North facade of the new addition.



### Interior - View of Student Organization Suite & Corridor from Entry

Adjacent to a double-height Campus Living Room is the Student Organization Suite (right), Student Union Operations (left), and a corridor connection to the newly configured bookstore and Student Success Center (middle).



# 6 Final Design Concept

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# Final Design Concept

## Overview

This Final Design Concept incorporates feedback received throughout the feasibility study design process and ultimately is a modified combination of Design Options 2 & 3. This concept explores the construction of a new Student Union building addition, providing 14,390 SF of new space for students at the New Kensington campus. The East-West building configuration takes advantage of natural daylight & views of the surrounding landscape, expanding upon the strengths of the adjacent existing Student Union building. Interior & exterior transparency, connectivity, and access to views drive the architecture both inside and out.

In this configuration, a serpentine path engages a newly-graded lawn, where local stone-block seating walls create spaces for students to gather and recreate. A secondary pedestrian path connects the upper courtyard and upper level entrances down to the parking area. Immediately inside the entrance is a two-story, glass-enclosed Campus Living Room, which overlooks the landscape. It is immediately accessible to the Student Organization suite and Student Union Operations. The existing bookstore and Student Success Center in the existing building would be reconfigured in an effort to increase spatial, visibility, & efficiency concerns as explored in the previous design options. The loading dock area is also brought up from the Sub-Basement level to the Basement [Lower] level to mitigate logistics & material management concerns.

On the upper level, a large day-lit multi-purpose space, student health center, and two meeting rooms are provided within walking distance to the existing dining facility.

The exterior design is contemporary and clean, while its material palate speaks to the architectural language of the campus. Frit glass & wood-look metal sun shade devices help to mitigate thermal heat gain.



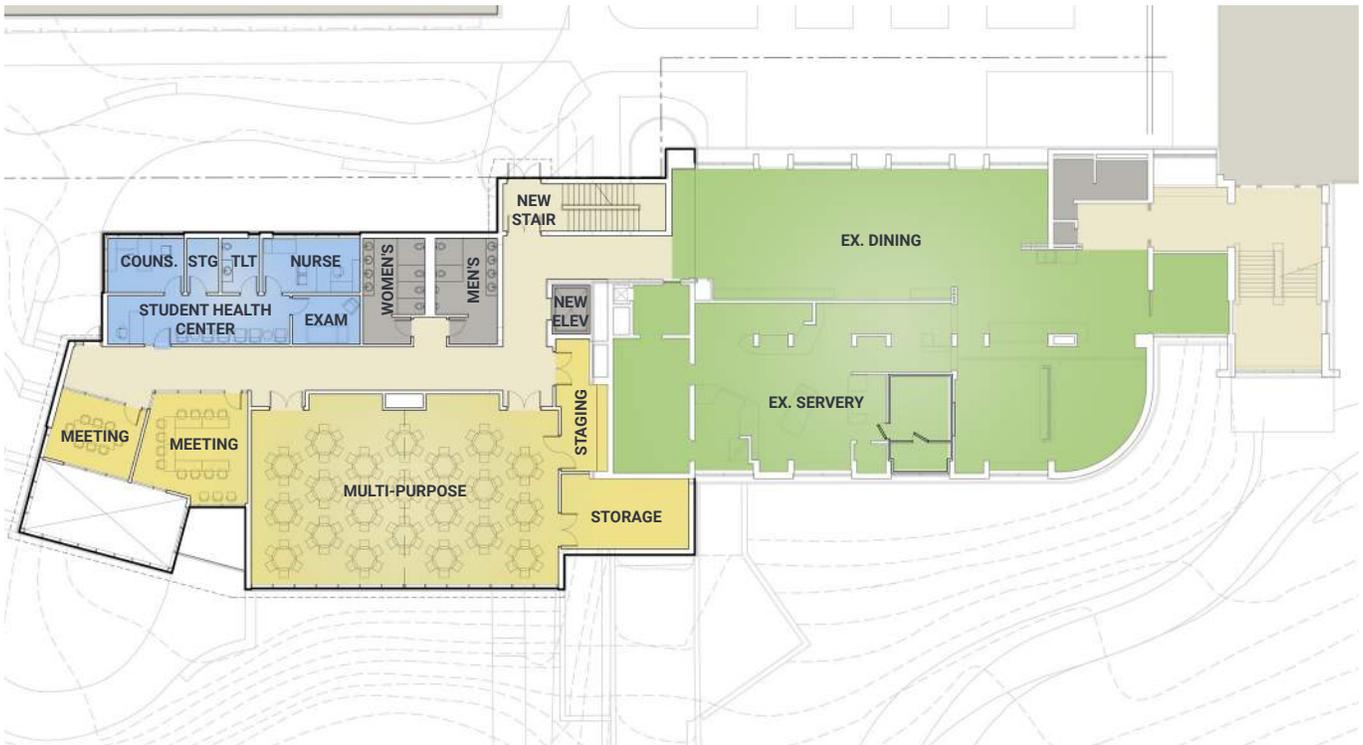
Proposed Landscape Site Plan

The existing lawn is regraded to accommodate ADA pedestrian access to the building, and to help manage rainwater movement and filtration. A new walkway engages with the topography while new building entrances to the upper level are introduced at the North and Northwest corner and connected by a secondary path. Natural stone seat walls are nestled into the terrain above rain gardens, while the loading area is shielded from view by method of retaining wall and evergreen planting.



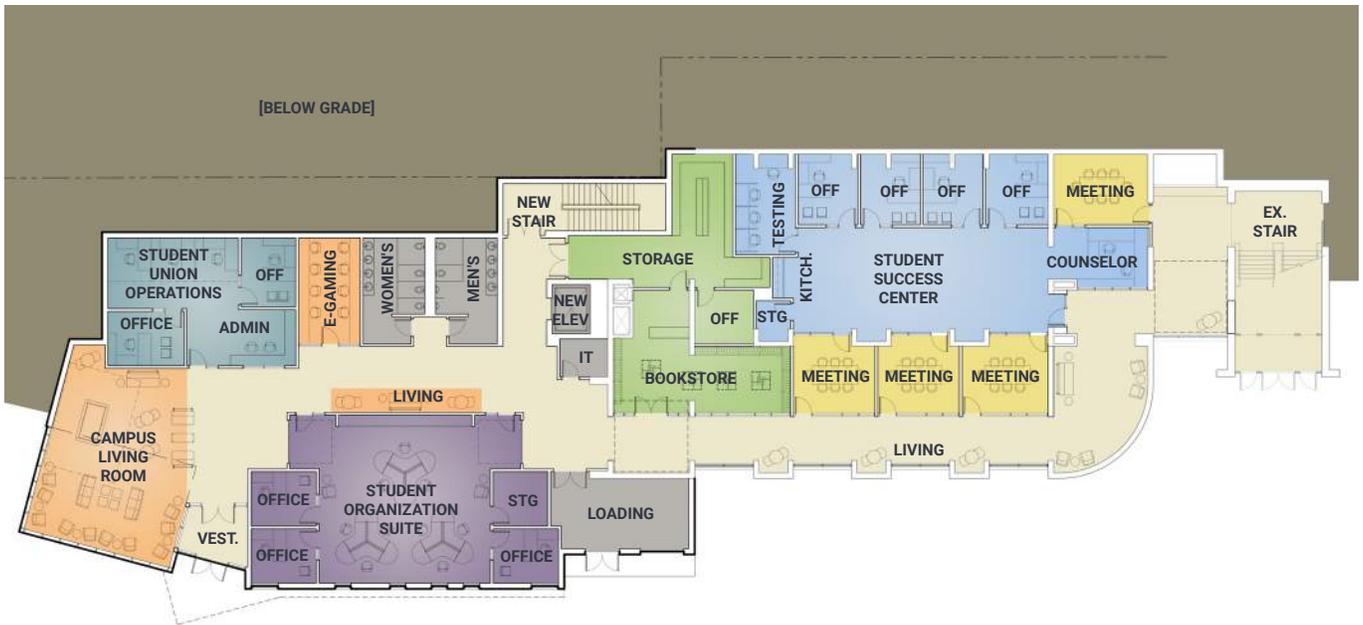
Proposed Utility Plan

New construction in this area would require work to relocate existing water, sanitary, gas, & electric infrastructure, with no impact to existing pavement as far as utilities are concerned.



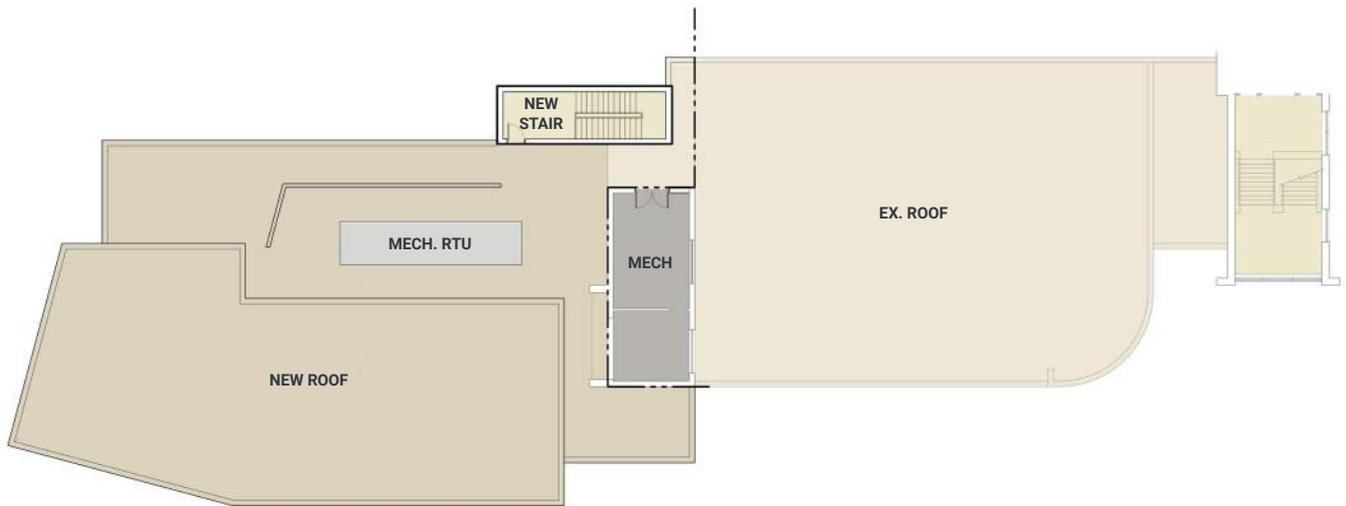
Proposed Ground Floor Plan [Upper Level]

A new multi-purpose space and meeting rooms take advantage of Southern daylight and views of the landscape, while the student health center holds the quieter Northwest corner of the plan.



Proposed Basement Plan [Lower Level]

Natural daylight is abundant in the Campus Living Room and Student Organization Suite, while new full-height windows are introduced on the South side of the existing Student Union building to bring daylight into the relocated Student Success Suite & Bookstore.



Proposed First Floor Plan [Roof Level]

A new egress stair on the North facade provides access to existing & new roof conditions, while roof screening hides new mechanical equipment for the addition.



Proposed Sub-Basement Plan

A reconfigured loading area (now moved up to the lower level) is gained as additional mechanical space on this level.



Aerial View

A newly-regraded lawn accommodates new pedestrian paths and provides access to multiple building entry points.



Aerial View

Views from the building to the South and West are maximized.



Aerial View from Southwest

A glass facade admits an abundance of natural daylight into the two-story Campus Living Room beyond.



Aerial View from Southwest - Evening

The two-story Campus Living Room and upper level multi-purpose space act as a beacon when lit up in the evening.



Site Entrance

Upon arrival, pedestrians are given an option to proceed right to the Student Union entrance or up to other campus buildings and the dining pavilion.



Lawn

A large South-facing lawn provides an opportunity for impromptu recreation.



Garden Walk

A large South-facing lawn provides an opportunity for impromptu recreation.



Lawn View

An increase of about 18' in elevation from the parking area allows for distant views.



### Upper Courtyard

An upper level building entry ties into the existing path system within the upper courtyard.



### Seating Walls

Rough-cut natural stone retaining and seating walls invite students, faculty, & visitors to congregate and pause.



Building Entrance - Afternoon

The lower level main entry is slightly recessed to indicate its identity as a pedestrian destination.



Building Entrance - Evening

The inspiring two-story Campus Living Room acts as a beacon when lit up in the evening.



Entrance | Campus Living Room

Lower level building entrance and adjacent recreation spaces.



Entrance | Campus Living Room

Lower level building entrance and adjacent recreation spaces. Beyond is a visual and pedestrian connection into the Student Organization Suite.



Campus Living Room

This double-height space provides expansive views while admitting an abundance of daylight into the building.



Campus Living Room

This double-height space provides expansive views while admitting an abundance of daylight into the building.



### Student Organizations

Punched openings provide views out from within this collaboration space.



### Circulation Corridor

New full-height windows along this corridor admit daylight through glazing-enclosed meeting areas and into the Student Success Center.



Student Success Center

View from the Northeast corner.



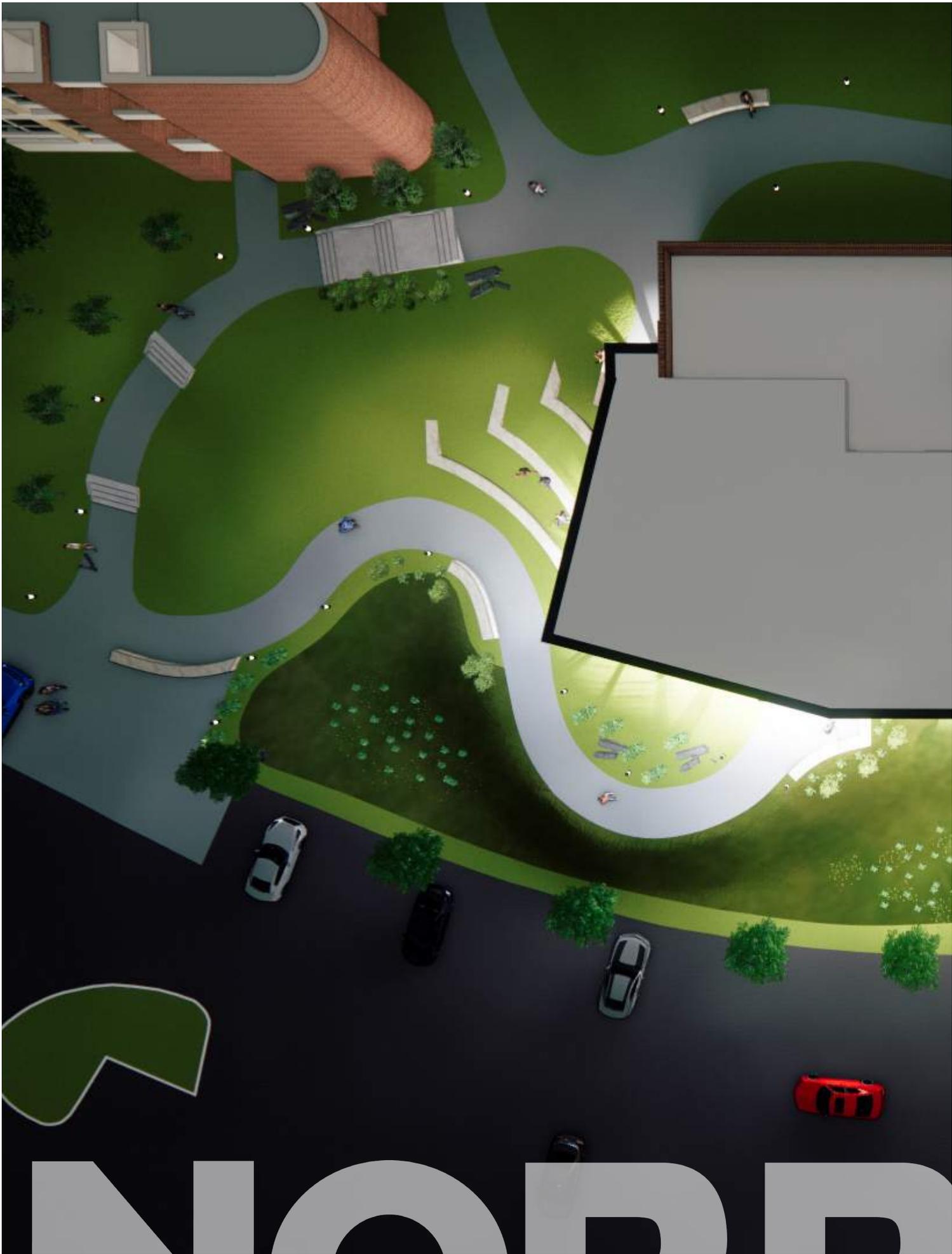
Student Success Center

View from the Northwest corner.



View from Southeast | Loading Area

The newly-reconfigured loading area is shielded from view with evergreen vegetation and site walls.





# 7 System Design Narratives

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# Architectural Design Narrative

## I. BUILDING ENVELOPE

Glazing: Framing Type 1

- 7 ½" Aluminum Curtain Wall System
- Kynar-500 coated
- BOD: Kawneer UT2500 or identical substitute
- Allow for structural silicone glazed joints in one direction (vertical or horizontal)

Framing Type 2

- 4 ½" Thermally Broken Aluminum Storefront System (at entrances)
- Kynar - 500 coated
- BOD: Kawneer TriFab 451T or identical substitute

Glass Type 1 (IGU 1)

- "Guardian Sunguard SNR43" outer lite, clear inner lite
- Tempered when below 18" AFF

Entry Doors: Kawneer Storefront – medium style, finish to match adjacent window framing.

Wall Types: Wall Type 1: Standard Modular Brick Wall:

- 4" nominal, standard modular face brick
- 3" poly-iso rigid insulation on the exterior side of the sheathing, R7.5 continuous.
- Fluid or sheet applied non-permeable weather barrier "Henry Blueskin" or identical substitute.
- 5/8" "Dens Glass" exterior sheathing
- 6" Galvanized steel studs (full height) with 5 1/4" mineral wool batt insulation.
- 5/8" GWB interior sheathing
- Manufactured aluminum coping system consisting of formed metal coping cap in length not less than 12 feet, concealed anchorage, corner units, end cap units, and concealed splice plates in matching color.

Wall Type 2: Manufactured stone masonry units

- Nominal 8"x24"x4" manufactured stone masonry units, limestone color
- BOD: Arriscraft (Georgia) Renaissance Limestone Smooth
- 3" poly-iso rigid insulation on the exterior side of the sheathing, R7.5 continuous.
- Fluid or sheet applied non-permeable weather barrier "Henry Blueskin" or identical substitute.
- 5/8" "Dens Glass" exterior sheathing
- 6" Galvanized steel studs (full height) with 5 1/4" mineral wool batt insulation.
- 5/8" GWB interior sheathing
- Manufactured aluminum coping system consisting of formed metal coping cap in length not less than 12 feet, concealed anchorage, corner units, end cap units, and concealed splice plates in matching color.

Wall Type 3: Insulated Metal Wall Panels, Soffit and Fascia

- Concealed fastener, foamed insulation core metal wall panels with tongue-and-groove panel edges. 08in. thick single skin aluminum panel, Two coat Fluoropolymer finish from manufacturers full line of offerings

- BOD: Centria Formawall, Kingspan, or equal
- 3" poly-iso rigid insulation on the exterior side of the sheathing, R7.5 continuous.
- Fluid or sheet applied non-permeable weather barrier "Henry Blueskin" or identical substitute.
- 5/8" "Dens Glass" exterior sheathing
- 6" Galvanized steel studs (full height) with 5 1/4" mineral wool batt insulation.
- 5/8" GWB interior sheathing
- Manufactured aluminum coping system consisting of formed metal coping cap in length not less than 12 feet, concealed anchorage, corner units, end cap units, and concealed splice plates in matching color.

Wall type 4: Rooftop Equipment Screen

Roofing Material: EPDM roofing with solar reflective index not less than 78.

Exterior Painting: Existing Aluminum Storefront on existing Student Union Building.

- High-Performance Coatings: Tnemec Endura Shield Series 1080 or equivalent by approved manufacture. Primer - MPI#80; Intermediate Coat: Primer - epoxy as recommended by topcoat manufacturer; Topcoat - Polyurethane, two-component, pigmented, gloss Level 6, MPI #72.

Structural Openings: New structural openings and supports will be required at South elevation at new curtainwall openings; new skylights; new elevator; new stairs; mechanical units; and shafts.

## **II. INTERIOR DEVELOPMENT**

Interior Glazing: Glass Type 1

- 1/4" clear for interior glazing
- Tempered when below 18" AFF

Elevator: Otis HydroFit 3500 lbs machine roomless holeless electric 2 stop elevator; one sided

Walls: Assume standard stainless-steel cab finish allowance.

Ceiling: Assume standard stainless-steel cab finish allowance.

Floor: Porcelain Tile 12" x 24" - pattern to be determined (Ergon Stone Project or equal).

Partitions: Stair towers and elevator shaft - 8" nominal CMU, 2 hour rated

All other walls (unless noted otherwise) on plans are typically 6" studs to underside of structure with 5/8" GWB each side and sound attenuation batts.

Doors & Frames:

Core: Painted HM frames; natural finish, wood, solid core doors; 1.5 pair hinges; mortise lock set, closer, silencers, kick-plates. Use low-VOC, water-based, satin polyurethane finish. Doors are to be fire-rated as required by code.

Interior Finishes & Materials:

BASEMENT FLOOR (new construction):

Campus Living Room:

Floor: Carpet tile.

Base: 4" rubber base

Walls:       GWB, PTD  
Ceiling:     Exposed ceiling, PTD, with acoustic baffles.  
Lighting:    LED downlights & wall-washers

Student Union Operations:

Floor:        Carpet tile.  
Base:         4" rubber base  
Walls:        GWB, PTD  
Ceiling:     ACT  
Lighting:     LED  
Doors:        PTD. HM frames with sidelight, typ. Door: full lite maple, nat clr fin.  
Casework:    Wood veneer undercounter cabinets w/ solid surface counter top.

Student Organizations:

Floor:        Carpet tile.  
Base:         4" rubber base  
Walls:        GWB, PTD  
Ceiling:     ACT in offices, typ. Exposed, PTD with acoustic baffles in open work area.  
Lighting:     LED pendent fixtures  
Doors:        PTD. HM frames with sidelight, typ. Door: full lite maple, nat clr fin.  
Casework:    Wood veneer undercounter cabinets w/ solid surface counter top.

Corridor:

Floor:        Porcelain Tile 12" x 24" – pattern to be determined  
Base:         4" high Porcelain straight base  
Walls:        GWB, PTD  
Ceiling:     Exposed, PTD with acoustic baffles  
Lighting:     LED pendent fixtures

Loading:

Floor:        Sealed conc.  
Base:         4" High Rubber base alt: None  
Walls:        Painted GWB alt: Primed GWB  
Ceiling:     Open to above  
Lighting:     Suspended LED strips  
Doors:        PTD MTL.  
Frames:      Painted hollow metal, PTD overhead coiling door.  
Dock:         Dock leveler.

BASEMENT FLOOR (renovation):

Bookstore:

Floor:        Carpet tile in office and retail area. Sealed Concrete in Storage.  
Base:         4" high rubber base  
Walls:        GWB, Ptd. Slat wall in retail area.  
Ceiling:     ACT.  
Lighting:     LED downlights & wall-washers  
Doors:        PTD. HM frames, typ. Doors: full lite maple, nat clr fin.

Student Success Center:

Floor: Carpet tile typ.  
Base: 4" high rubber base  
Walls: GWB, Ptd.  
Ceiling: ACT.  
Lighting: LED downlights & wall-washers  
Doors: PTD. HM frames, typ. Doors: full lite maple, nat clr fin.  
Casework: Wood veneer cabinets w/ solid surface counter top.

Meeting rooms (typical):

Floor: Carpet tile typ.  
Base: 4" high rubber base  
Walls: GWB, Ptd.  
Ceiling: ACT. and GWB (assume 80/20)  
Lighting: LED downlights & pendant fixtures  
Doors: PTD. HM frames, typ. Doors: full lite maple, nat clr fin.

Staging/Storage:

Floor: VCT.  
Base: 4" rubber base  
Walls: GWB, PTD  
Ceiling: ACT  
Lighting: LED downlights  
Doors: PTD. HM frames, typ. Doors: maple, nat clr fin.

GROUND FLOOR (New Construction):

Health & Wellness:

Floor: Carpet tile typ.  
Base: 4" high rubber base  
Walls: GWB, Ptd.  
Ceiling: ACT.  
Lighting: LED downlights  
Doors: PTD. HM frames, typ. Doors: maple, nat clr fin.  
Casework: Wood veneer cabinets w/ solid surface counter top.

Meeting rooms (typical):

Floor: Carpet tile typ.  
Base: 4" high rubber base  
Walls: GWB, Ptd.  
Ceiling: ACT. and GWB (assume 80/20)  
Lighting: LED downlights & pendant fixtures  
Doors: PTD. HM frames, typ. Doors: full lite maple, nat clr fin.  
Operable Part.: Modernfold electronically controlled operable room partition

GROUND FLOOR (Renovation):

Dining, Servery, Kitchen): No new work area, existing to remain. Install new sprinkler system only.

Freezer/Refrigerator: New built-in freezer/ refrigerator.

Fire Stairs (new):

- Tread: Rubberized Tread, Roppe or sim, over concrete filled pan.
- Landing: VCT tiles, Mannington or sim.
- Railing: Painted steel square pickets in 1 ½" dia. painted steel pipe railings or painted steel wire mesh panels in 1 ½" dia. Painted steel pipe railings.
- Ceiling: GWB suspended; taped and primed.
- Lighting: Recessed LED fixtures
- Doors: Painted HM door and frame. Rating as required by code.

Fire Stairs (existing): Existing finished to remain.

Toilet Rooms:

- Floor: Porcelain Mosaic floor tile 1" x 1" – pattern to be determined
- Base: Porcelain & ceramic cove base
- Walls: Ceramic 3x6 subway tile on all walls to 6'-0" AFF, Paint
- Ceiling: GWB Soffit above sinks & 2' x 2' Acoustical ceiling tile  
Tegular with 15/16" grid (Armstrong Optima or Equal)
- Lighting: LED cove fixture above toilets & sinks with supplemental  
LED downlights in center of rooms
- Toilet Partitions: Stainless Steel – floor mounted - overhead braced.
- Counters: Solid Surfaces (Cambria or equal) with under-mount sinks
- Doors: Painted HM door and frame.
- Accessories: Provide horizontal & vertical grab bars, toilet paper dispensers, sanitary products disposal bins, Toilet seat cover dispensers, & hands free faucets & soap dispensers and electric hand dryers (2) per room

Utility Rooms:

- Floor: VCT – Vinyl Composite tile alt: None.
- Base: 4" High Rubber base alt: None
- Walls: Painted GWB alt: Primed GWB
- Ceiling: Open to above
- Lighting: Suspended fluorescent strips
- Doors: Typical Core type- see above.
- Frames: Painted hollow metal

Fire Extinguishers: Semi-recessed cabinets and 10lb A-B-C extinguisher.



# Mechanical, Electrical, Plumbing, & Fire Protection Design Narrative

## HVAC

### I. Student Union Addition

- A. The proposed HVAC system for the addition includes a single packaged variable air volume (VAV) rooftop unit (RTU) with natural gas heat and electric, direct expansion (DX) cooling. The unit will be sized to provide heating, cooling and ventilation to all spaces of the addition. Estimated size for this unit is 15,000 CFM, 30% outside air (4,500 CFM), 40-ton cooling capacity. The new RTU will be installed on a vibration isolation curb per PSU standards to reduce noise and vibration.
- B. Areas will be zoned to provide proper temperature control and ventilation of similar type spaces. Zoning will be done using VAV terminal boxes with electric reheat coils.
- C. Electric terminal heat will be provided at exterior doors, vestibules, large exterior windows, etc. This equipment will include cabinet unit heaters, horizontal unit heaters, wall heaters and electric base board heaters to fit the various applications and spaces.
- D. Roof mounted exhaust fans will be provided for toilet room and general building exhaust. Anticipated exhaust for the addition is approximately 1,800 CFM.
- E. All new equipment will be controlled through the campus Automated Logic Building Management System.

### II. Existing Building Renovation

- A. The existing building is currently served by two split system air handling units (AHU), one located in the Mechanical Penthouse and one located on the Ground Floor. Both units are supplied with chilled water from an air-cooled chiller on the roof of the Mechanical Penthouse and include electric heat.
  - 1. AHU-1 - The system consists of a Carrier multi-zone AHU with four (4) supply zones, chiller water cooling and electric heat. The AHU is sized for 14,800 CFM at 1.35" external static pressure and about 9% (1,390 CFM) minimum outside air. This unit serves all areas of the building except for the Bookstore.
  - 2. AHU-2 - The system consists of a Carrier single zone AHU, chiller water cooling and electric heat. The AHU is sized for 1,890 CFM at 1.75" external static pressure and about 7% (140 CFM) minimum outside air. This unit serves the Bookstore.
  - 3. A 50 nominal ton Carrier outdoor air-cooled chiller provides cooling for the AHUs through a glycol/water solution and base mounted circulating pumps. The pumps are in a duty-standby arrangement located in the Mechanical Penthouse and are each 1-1/2 horsepower sized for 90 GPM at 30 feet of head.
- B. The existing 50-ton air-cooled chiller is located on the roof of the Penthouse with existing fall protection railings around the entire unit due to its close proximity to the edge of the existing roof. Relocation of the existing air-cooled chiller to the new addition roof should be considered as an add alternate to the project.

- C. The existing multi-zone AHU as well as the single zone AHU are original to the building and, in a Facility Condition Assessment completed by ISES Corporation in 2016, were recommended to be replaced due to age and deterioration. Replacement of this system should be considered as an add alternate to the project. Three options would include:
1. Replacing the system with similar split systems in the same locations, while moving the air-cooled chiller to a lower roof to eliminate the need for fall protection
  2. Providing a new packaged RTU sized for the existing building and locating it on the new addition roof
  3. Providing one consolidated new packaged RTU sized for the existing building and new addition and locating it on the new addition roof.
- As part of the replacement RTU options, additional work would be required to provide the correct duct zoning to match the existing supply air distribution and connect to the ductwork from AHU-2 serving the existing Bookstore.
- D. Regardless of the equipment option selected, some ductwork modifications will be required in the existing spaces to provide proper air conditioning to the renovated layouts.
- E. As part of any AHU replacement, all new systems should be upgraded in order to ensure Code required ventilation is being provided to all spaces.
- F. There is an existing kitchen hood exhaust fan mounted on the side of the existing building near the addition connection. This existing fan is 3/4 horsepower sized for 900 CFM at 1.8" external static pressure. Depending on exactly where the final addition falls, this fan may need to be replaced or relocated to accommodate the addition and new HVAC equipment on the roof of the addition.
- G. There is a significant amount of electric terminal heating equipment throughout the existing building. Some modification of these heaters may be required to accommodate revised space layouts as part of this project.
- H. There is an existing kitchen hood make-up air unit and associated ductwork on the roof of the existing building. PSU has requested reconfiguration/relocation of this existing unit/system be considered to move it away from the edge of the roof. This work should be considered as an add alternate to the project.
- I. All new equipment will be controlled through the campus Automated Logic Building Management System.

## Electrical

### I. General

- A. The intent of this subsection is to set forth, in a word description the design criteria and concept for the design and operation of the electrical systems. This description will cover the electrical power, grounding, lighting, fire alarm, and raceway systems for telephone, data, access control systems. This project will consist of all electrical systems or raceways for electrical systems (as noted below) for a complete code compliant Electrical system for the new building as well as the renovations to the lower level of the existing Student Union building.

## II. Electrical Codes and Standards

A. All work shall adhere to the latest adopted codes as listed below:

1. National Electrical Code (NFPA 70)
2. Institute of Electrical and Electronic engineers (IEEE)
3. National Electrical Manufacturer's Association (NEMA)
4. American National Standards Institute (ANSI)
5. Applicable State and Local Codes
6. Applicable Standards of the Underwriters' Laboratories, Inc. (UL)
7. Applicable Standards of National Fire Protection Association (NFPA)
8. The International Building Code (IBC)
9. The International Fire Code (IFC)
10. The Americans with Disabilities Act (ADA)
11. The International Electrical Testing Association (NETA)
12. The International Energy Conservation Code (IECC)
13. ASHRAE 90.1
14. Applicable Standards of Local Utility Companies

## III. Design Criteria

A. Electrical Service

1. The existing Student Union Building is fed from an existing 1000kVA pad mounted transformer that also serves adjacent buildings per older electrical drawings. The feed goes underground to the 480 switchboard in the sub-basement of the building which is also the loading dock receiving area. It is recommended that a new pad mount transformer be set, possibly near the dumpsters, to serve the entire Student Union Building. Work associated with the existing pad mounted transformer will need to be coordinated with the University as the on campus distribution system is owned by the University.. Design loads will need to be provided to the utility company to determine if the main gear serving the campus will have capacity to serve the additional loads. The existing transformer will remain to serve the existing buildings currently served from the transformer.
2. The existing 480V switchboard is rated at 800Amps and is manufactured by GE. Ahead of the switchboard is the main disconnect switch rated at 800Amps and fused with 600A fuses. It is a fusible switch style switchboard and it currently only has one 100A spare fusible switch that won't be large enough to serve the addition. It is recommended to provide a new switchboard to serve the new building and to backfeed this existing switchboard, if elected not to be upgraded. This will allow the new buildings loads to be fed from the new switchboard and to provide additional spare capacity for future renovations. Service entrance switchboard shall have a main breaker, distribution breakers and shall be rated for 1200A, 480/277V 3-phase 4-wire. The switchboard shall be rated for 65 KAIC and shall have long time, short time, instantaneous, and ground fault protection. Provide customer metering for the switchboard. Provide a surge protective device for the switchboard. The new switchboard will be located in the existing loading/receiving room where the existing main service is located. Gear can sit on the outside wall where the roll up door use to exist.
3. The existing service conductors are rated for 600A capacity and will need to be replaced to serve the new service equipment. New service conductors in a new ductbank to be upgraded to (3) sets of 4-#600 KCMIL in (3)-4" conduits for the 1200A service.
4. In the existing building due to the age of the building and the equipment all being original the following panels and associated feeders should be replaced under a separate price:

- a. Panel MDP1, 277/480V, 3-phase, 4-wire, 600A, (2) 30A-3P, (2) 60A-3P, (2) 100A-3P, (4) 200A-3P
- b. Panel MDP2 120/208V, 3-phase, 4-wire, 400A, (1) 30A-3P, (3) 60A-3P, (2) 100A-3P, (3) 200A-3P
- c. Panel A, 277/480V, 100A, 3-phase, 4-wire, 42 pole, (21) 20A-1P, (3) 20A-3P
- d. Panel B, 120/208V, 100Amp, 3-phase, 4-wire, 42 pole, (20) 20A-1P, (2) 30A-1P, (1) 20A-3P
- e. Panel C, 277/480V, 225Amp, 3-phase, 4-wire, 42 pole, (20) 20A-1P, (2) 20A-3P
- f. Panel D, 120/208V, 225Amp, 3-phase, 4-wire, 42 pole, (24) 20A-1P, (1) 30A-1P, (1) 20A-3P
- g. Panel G, 277/480V, 100Amp, 3-phase, 4-wire, 42 pole, (9) 20A-1P, (1) 20A-3P
- h. Panel H, 120/208V, 225Amp, 3-phase, 4-wire, 30 pole, (15) 20A-1P, (2) 30A-1P, (1) 20A-3P, (1) 50A-2P
- i. Panel K-1, 120/208V, 225A MCB, 3-phase, 4-wire, 42 pole, (24) 20A-1P, (1) 20A-2P, (1) 30A-2P, (1) 60A-2P, (1) 30A-3P, (1) 70A-3P, (2) 100A-3P
- j. Panel PP, 277/480V, 225Amp, 3-phase, 4-wire, 42 pole, (6) 30A-3P, (2) 100A-3P
- k. 75kVA 480-120/280V transformer.
- l. Panels EP1, EP2, EP3, EP4, K2 and K3 were added in 2010 and are in good condition.

5. All utility fees associated with the electrical service scope shall be paid for by the Owner.

#### B. Power Distribution

1. Distribution panels and branch panelboards shall be provided to feed each level of the building to serve common areas and common corridor.
2. Provide distribution panels for the upper level to serve roof mounted equipment. The distribution panel shall be 480/277V 3-phase 4-wire and shall feed required branch circuit loads. There shall be a minimum of one step down 480-208/120V 3-phase 4-wire transformer feeding 208/120V 3-phase 4-wire panelboards for small loads and receptacle circuits.

#### C. Back-up Power Service and Distribution

1. The back-up power service for the existing building is by a natural gas fired emergency generator. The generator is located outside adjacent to the current loading dock roadway. The generator is equipped with a weather-tight enclosure and critical grade muffler/silencer. The existing generator is estimated to be rated for 20kW at 0.8 power factor at 120/208V 3-phase 4-wire.
2. The generator currently feeds two automatic transfer switches. One is rated at 30A and feeds a 100A panel, and the other at 70A and feeds a 100A panel. Neither can truly be considered life safety since both serve some non-life safety loads. It is recommended that the loads be reconfigured to dedicate one ATS to be truly life safety and the second switch to be listed as non-essential.
3. For the new building only a few circuits should be needed to serve life safety lighting and some fire alarm panels.

#### D. Grounding and Bonding

1. Provide a new grounding system for the building. The grounding system shall consist of connections to:
  - a. Building steel
  - b. Metallic incoming water piping (before and after meter)
  - c. Grounding electrodes (provide a minimum of three 10'-0" x 3/4"D copper ground rods)
  - d. Concrete encase electrode (Ufer ground, not less than 50'-0" of copper ground cable embedded in concrete).

2. Provide a new main building ground bar. Ground bar shall be ¼" thick, 6" high, and 36" in length.
3. Provide a new telecommunications ground bar (TMGB) in the electrical rooms and telecommunications rooms on each floor. TMGB shall be ¼" thick by 4" high by 24" in length. Connect TMGBs to the main building ground bar via #4/0 copper conductor riser running from the 12th floor down to the first floor. Conductors feeding the TMGBs shall be T-tapped onto grounding riser.
4. The grounding system shall be designed per NEC article 250.
5. All circuits shall have a grounding conductor.

E. Mechanical Equipment Electrical Connections

1. Provide electrical connections for all mechanical, plumbing, and fire protection equipment provided new or modified under this project. Refer to mechanical, plumbing, and fire protection narratives for additional information. Disconnect switches for equipment shall be provided by the Electrical Contractor.

F. General Power Requirements

1. Provide 120V 20A duplex convenience receptacles for common spaces in accordance with applicable codes and good design practice.
2. All electrical and telecommunications closets shall be fitted with receptacles.
3. Receptacles in wet locations shall be GFCI type receptacles.
4. All feeders shall be type THHN/THWN conductors in conduit unless otherwise noted. Conduit shall be PVC for electrical service entrance ductbank. Conduit shall be permitted to be EMT in locations not subject to abuse.
5. Provide nameplates for all electrical equipment including switchboards, transfer switches, transformers, safety switches, panelboards, and other major pieces of electrical equipment. Nameplates shall include equipment name, name of upstream equipment feeding equipment, amperage and voltage of equipment, and calculated fault current at the equipment.
6. Provide arc flash labels for all electrical equipment.
7. Provide switches, lighting fixtures, receptacles, and disconnect switches for new elevator. Wiring devices located in the elevator pit and machine room shall be located in weatherproof while-in-use covers. Elevator disconnect switches shall be shunt trip type elevator controllers designed for the purpose as manufactured by Littlefuse or approved equal.
8. Provide Arc Flash, Coordination, and Short Circuit studies.

G. Lighting

1. All interior lighting fixtures shall be fitted LEDs with a Correlated Color Temperature (CCT) of 2700K – 3000K. All fixtures shall have a CRI of 80 (minimum).
2. Lighting shall be provided at 277V for common spaces, and exterior fixtures.
3. All exterior lighting shall be LED. Provide LED wall sconce fixtures for general flood lighting in sidewalk

areas.

4. Lighting power densities and lighting controls shall comply with the adopted standards set forth in the IECC and ASHRAE 90.1.
5. Provide lighting fixtures and controls for all areas. Lighting controls shall be a combination of occupancy sensors and timed on/off relay-based controls for common areas.
6. Lighting levels of spaces shall adhere to the IESNA recommended lighting levels. Minimum average maintained lighting levels by space are as follows:
7. Emergency lighting shall be powered by the emergency power system. Emergency lighting that is controlled (not a night light) shall be powered through both the normal source and the emergency source via a UL 924 listed transfer device such as those manufactured by LVS Inc.
8. Exit light fixtures shall be LED and shall be connected to the emergency power system via uncontrolled circuit.
9. Emergency lighting shall provide a 1 foot-candle average along the path of egress.
10. Stairwell lighting shall utilize lighting fixtures with built in occupancy sensors to reduce the lighting output of the fixtures from 100% during occupied periods down to 30% during unoccupied periods. Stairwell fixture output to be reduced if code allows.

#### H. Fire Alarm System

1. The existing fire alarm panel was upgraded around 2010 with a Simplex 4010 fire alarm control panel. According to the manufacturer this was an early release of the panel which is limited in the number of points that it can serve. So it is recommended to replace the existing Simplex 4010 fire alarm control panel to a digital addressable alarm system to permit additional devices to be added to the existing system and to serve the new building and its components being tied into the fire alarm system.
2. Provide manual pull stations at all building exits and entrances into building egress stairwells on each floor.
3. Provide smoke detectors in all electrical, mechanical, and telecommunications rooms.
4. Provide duct detectors and connections for any fire/smoke dampers that may be required for mechanical work.
5. Provide a smoke detector in all corridors.
6. Provide addressable monitor modules and connections for all tamper, flow, and pressure switches.
7. Provide all required control panels and system displays in the fire command center as required under IBC Section 911. The fire alarm control panel shall be located in the sub-basement of the existing Student Union Building where the existing FACP currently exist.
8. Provide a fire alarm annunciator panel at the main fire department entrance for the building.
9. Provide additional fire alarm transponder panels and notification appliance booster panels as required for complete and operational system.

10. Provide control modules for release of access-controlled doors upon activation of fire alarm system.
  11. Provide connections for any hold open doors at elevator lobbies.
  12. Provide relays for the elevator controllers. Provide heat and smoke detectors, relay modules, and all required appurtenances in elevator pits, machine rooms, and shafts to meet current elevator code requirements. Provide all connections as required to elevator shunt trip and recall.
  13. Provide horn, strobes, and horn/strobes as required to meet NFPA 72 requirements for notification in all spaces.
  14. Each apartment unit shall have a single station smoke detector with sounder base located in each bedroom and in the egress space leading from the bedroom to the apartment exit door.
  15. Each apartment unit shall have a fire alarm system speaker located within each bedroom of the apartment.
  16. Provide an additional spare strobe circuit to each speaker location within the apartment unit. This strobe circuit shall be installed to meet the IBC requirement that each apartment unit be capable of being wired for ADA notification.
  17. Provide connection to parking garage CO monitoring system to fire alarm system.
  18. CO monitoring shall be in each apartment on the first two floor levels above the parking garage.
- I. Elevator Two-Way Communication System
1. Provide two-way communication system in the elevator lobby as required in IBC section 1007.8.
  2. Master communication station shall be located at a 24hour location.
  3. System shall be as manufactured by Alpha Communications or equal.
  4. System shall be wired so as to call out to local fire department for assistance
- J. Telephone, Data, and CATV Raceway System
1. Provide (2) 4" conduits from the existing MDF room in the existing Student Union Building to each of the IDF closets in the new addition. Provide (2) 4" conduit sleeves through the floor of each IDF closet to the closet above/below for vertical cabling.
  2. Each IDF room shall have 8'H x 4'W x 3/4" plywood backboard on at least two walls. Plywood shall be painted with a fire retardant intumescent paint. Provide (1) 20A 120C circuit and (1) 30A 208V circuit in the IDF room (a minimum of three 120V 20A receptacles).
  3. Provide 4"x4"x2 1/4"D box with 1" conduit and pull string from all telephone, data, and CATV outlets to above accessible ceiling. Provide tele/data outlets in accordance with the Owner's requirements and good design practice.
  4. The cabling shall be provided by the Electrical Contractor per the PSU standards. All raceways with pull strings and power cabling shall be provided by the Contractor. All tele/data and CATV cable, fiber from

existing IDF to new IDF closet, racks, patch panels, devices, jacks, and device cover plates, shall be provided by the Electrical Contractor. All of the component electronics equipment shall be provided by PSU unless otherwise noted.

#### K. Access Control Systems

1. Provide raceway systems for access control systems. Provide 4"x4"x2 ¼"D box for card reader with single gang plaster ring with 1" conduit (minimum) stubbed above access ceiling and terminated with plastic bushing for boxes in gypsum board walls.
2. Provide rough-in and conduit (1" minimum) for request to exit sensors, electrified door hardware connections, door contacts, magnetic locks, and request to exit push buttons as required. Coordinate all rough-in sizes and locations with access control system vendor prior to rough-in.
3. Provide 120V power at head end equipment location and at each controlled access door as required.

## Plumbing

- A. The combination fire/water main serving the existing Student Union Building enters on the western side of the building. Once the water main enters the building on the Ground Level, the main splits into a 2" domestic water main, with an 1-½" water meter, and a 4" fire service. Based on the existing drawings, no backflow prevention devices are present. An electric water heater with recirculating system is located in the basement. Based on the proposed addition, all the domestic water and fire distribution mains within the basement and part of the ground floor will need to be disconnected and removed. A new combination main is needed within the new addition. The combination main will have backflow preventers on each of the fire main and the domestic main, as well as a new meter on the domestic main. A new domestic water heater will be located within the new addition. New domestic cold water, hot water, and hot water return piping shall be installed in the new addition and connect to the existing distribution within the existing building. New domestic water piping will need to be increased in size to meet with the new demand of the building. The new combination main will be installed per Civil design and local Water Authority requirements.
- B. The existing natural gas service serves the existing generator and some kitchen equipment. There is no gas meter at the building. The existing regulator would need to be replaced and all new gas piping downstream of the regulator would need to be installed to serve the new HVAC RTU, and then feed the existing gas-fired equipment. Signage would be installed on the gas main feeding the generator to identify the requirements and shut-down responsibilities of the gas main. A natural gas meter can be added, if requested by PSU, and coordinated with local Gas Company requirements.
- C. New drainage systems would be needed for the new addition, extending on site, and connecting to the new drainage utilities that are on site. New sanitary mains will be extended from the new plumbing fixtures and new storm mains will be from the new roof drains on the new roof. Secondary drains will be needed, and secondary storm piping will terminate above grade along the perimeter of the new addition. New vents will be needed for the new addition. Foundation drainage piping shall be along the perimeter of the new foundation. All connections, depths, and locations of new sanitary and storm mains shall be in conjunction with the new utility work done on the site.
- D. All new plumbing work shall meet PSU OPP design and construction standards.

## Fire Protection

- A. There is an existing 4" fire service in the existing Student Union Building. Refer to Plumbing section above. Based on the existing drawings, the 4" fire service reduces to a 2" fire line that feeds one fire hose cabinet in the building near the student bookstore. Based on the proposed addition, the existing 2" fire main and fire hose cabinet can be removed. Fire hydrant flow tests will need to be conducted to determine the available flow and pressure available in the main waterline. These results will aid in determining the new combination water main size. A fire protection sprinkler system is recommended to be installed in the existing building and will be required in the new addition.
- B. The Plumbing Contractor shall furnish and install a flanged connection at interior water service entrance for beginning of the Fire Protection Contractor's work. Final connections to flange will be completed by the Fire Protection Contractor.
- C. Automatic wet-pipe sprinkler systems shall be provided throughout the existing building and new addition. Fire protection systems shall be hydraulically designed. All fire protection work and materials shall comply with all applicable building codes and NFPA 13. Special attention shall be given to the requirements unique to the high rise building classification.
- D. The need for a fire pump will be determined once fire hydrant flow test results are received.
- E. Aboveground piping shall be Schedule 40, ASTM A-53 black steel pipe. High strength Schedule 10/Schedule 40 sprinkler piping is acceptable, as manufactured by Youngstown Tube Company, Allied Tube and Conduit Company, or Wheatland Tube Company. All piping shall include factory coating of the inner wall of piping to guard against Microbiologically Influenced Corrosion (MIC). Pipe shall be UL Listed and FM Approved. Piping that is a part of the dry-pipe system shall be galvanized.
- F. Hangers for the fire protection system shall be UL Listed and FM Approved. Fittings shall be 150 lb. black malleable, cast iron threaded, roll groove, or welded and flanged fittings by Victaulic FireLock, Nibco Steelok, or Tyco.
- G. Valves shall be UL Listed; FM Approved; ball type, gate type and check valves; by Nibco, Victaulic, or Tyco. Inspector's test and drain valves shall be utilized. Alarm check valve shall be as manufactured by Viking, Victaulic or Tyco. Floor control assemblies will be installed on each floor.
- H. Monitor switches on control valves and flow indicators shall be provided and installed by the Fire Protection Contractor and wired and connected to the Fire Alarm System by the Electrical Contractor.
- I. Sprinkler heads shall be provided throughout the building. Sprinkler heads shall be of a type, upright, pendent, or sidewall, that is best suited to the conditions in which they are installed. Heads shall be as manufactured by Viking, Tyco, or Victaulic. Sprinkler heads in finished areas with ceilings shall be fully concealed pendent type. Sprinkler heads in areas without ceilings shall be upright type. Heads in areas subject to damage will be provided with guards. Additional spare sprinkler heads of each type shall be provided to the Owner.
- J. Fire Department Connections shall be by Potter-Roemer, Reliable or Elkhart. Coordinate type, lettering, threads, and mounting with the Fire Department before ordering the equipment.
- K. Double Detector Check Valve shall be by Watts, Apollo or Wilkins.
- L. Electric Alarm Bell shall have a 10" minimum diameter and shall be manufactured by Potter-Roemer, Victaulic, or Viking.

- M. Fire Protection Contractor shall install equipment in accordance with applicable codes, manufacturer's written instructions and recognized industry practices.
- N. Exposed sprinkler piping in public areas of the facility shall be painted. All risers and mains will be provided with directional flow arrows and stenciled or label markings to identify pipe.
- O. After equipment is installed, it shall be tested to demonstrate proper operation of performance and compliance with the Specifications. Equipment not operating correctly shall be field-corrected or replaced.
- P. System will be tested in accordance with NFPA requirements.
- Q. All new fire protection work shall meet PSU OPP design and construction standards.

# Structural Design Narrative

## I. General Scope of Work

The scope of work at the Student Union for the Pennsylvania State University, New Kensington Campus, involves the design of a new 14,000 square foot addition to and existing 16,000 square foot student union building. The addition will require the demolition of an existing stair and a portion of the first floor. The existing structure is concrete. The new structure is thought to be steel framed with composite floor decks and steel roof beams with metal deck.

The basement floor of the existing building will be renovated to make room for new office space. The structural work in this area is thought to include: new openings in load bearing walls, structural slab infill at recessed slab, and removing elevated floor slab to replace with new. The proposed structural design work for this project mainly consists of the following issues:

## II. New Structure

### A. Foundations

1. Foundation system options based upon a geotechnical report. However based upon the previous construction, the building is thought to be supported on shallow spread footings. The exterior walls will be retaining earth on the north side of the building. These walls will be 12" thick concrete walls double reinforced basement type walls.

### B. Elevated Floor

1. The typical elevated floor consists of a steel wide flange beam floor supporting a **3"x 20 GA** composite metal deck with a **3 ½" normal weight concrete** topping. The steel weight of the floor is approximately 8-9 pounds per square foot.

### C. Roof Framing

1. The typical roof framing consists of steel wide flange beams supporting **3" x 20 GA Type N** steel corrugated galvanized deck. The steel weight of the roof is thought to be 6-7 pounds per square foot.

### D. Mechanical Unit Support

1. HVAC units will be roof supported with steel members below roof curbs.

### E. Columns

1. Columns are wide flange steel shapes.

### F. Elevator Shaft

1. 8" CMU reinforced with #4 @ 48" on center supported on 12" concrete wall pit walls double reinforced with #4@12" each way. The elevator pit will be 5 foot deep and supported on a 12" concrete slab double reinforced with #4 @12" each way.

G. Lateral Resisting System

- 1. The lateral resisting system shall be steel moment frames with wide flange steel.

H. Facade Construction

- 1. The exterior walls of new construction area anticipated to be a combination of brick on cold form metal framing back-up and glass curtain walls. The glass elements will be supported by beam and columns as required to suit specific architectural requirements. Brick relieving angles will be required for any brick façade exceeding 25 feet in height.

III. **Structural Criteria**

A. Reference Specifications and Standards

The New Building and all renovations will be based on the requirements of the following codes and all standards referenced therein:

- 1. General Standards
a. 2015 International Building Code
b. American Society of Civil Engineers, "Minimum Design Loads for Buildings and Other Structures" (ASCE 7-10).
2. Material Specifications and Servicability Criteria Standards
a. Concrete
i. American Concrete Institute, Building Code Requirements for Reinforced Concrete (ACI 318).
b. Structural Steel
i. American Institute of Steel Construction, Specification for Structural Steel Buildings - Load and Resistance Factor Design.

B. Structural Materials

The following materials are anticipated to be used in the Project structural design and/or evaluated through the design process:

- 1. Concrete

Table with 4 columns: Element, Strength, Max. W/C, Unit Wt. (PCF). Rows include Retaining / Foundation Wall, Exterior Slabs on Grade, Foundations, Slab on Grade, Slab on Deck.

- 2. Concrete Reinforcing
a. Deformed Bars: ASTM A 615, Grade 60.
b. Welded Wire Fabric: ASTM A 185, flat sheets.

3. Structural Steel

<b>Element / Shape</b>	<b>Standard / Grade</b>
W Shapes	ASTM A 992
M, S, and C Shapes	ASTM A 572, Grade 50
Hollow Structural Sections	ASTM A 500, Grade B (Fy=46 ksi)
Structural Pipe	ASTM A 53, Grade B (Fy=35 ksi)
Angles & Miscellaneous	ASTM A 36

4. Metal Deck

- a. ASTM A 653, Galvanized.

**C. Loads**

Structural loads are the forces or pressures that structural components must be designed to adequately resist. They arise from the weight of materials, occupancy, environmental effects, and other sources. The structural steel framing and concrete foundations will be designed for the following loads.

1. Risk Category

- a. **Risk Category III** will be used to calculate flood, wind, snow, ice, and seismic loads

2. Floor Live Load

- a. Live Loads are those types of gravity-induced loads intended to provide for the transient requirements of the occupancy.

<b>Occupancy</b>	<b>Design Live Load (PSF)</b>
First-Floor Corridors	100
Lobbies	100
Corridors Above First Floor	80
Partition	15
Rest Rooms <sup>2</sup>	60
Stairs and Exits	100
Mechanical Rooms <sup>1</sup>	150
Electrical Rooms <sup>1</sup>	100
Storage Rooms <sup>1</sup>	125
Mail Rooms <sup>1</sup>	125
Classrooms <sup>2</sup>	40
Offices <sup>2</sup>	50
Retail	100
Libraries <sup>1</sup>	150
Kitchen & Dining Areas <sup>1</sup>	150
Assembly Areas	100
Theater Stage	150

<sup>1</sup> Subject to verification with actual equipment, storage, or other loads and layouts.

<sup>2</sup> In areas where subdividing partitions are to be used and the design live load is 80 PSF or less, an additional partition live load of 15 PSF will be used to allow for random placement of demising drywall partitions.

### 3. Roof Loads

- a. Minimum Roof Live Load
  - i. Minimum roof live load is **20 psf**.
- b. Snow Load
  - i. The Ground snow load established by Code for the Project Site is **20 psf**.
  - ii. Minimum flat roof snow load is **30 psf**.
  - iii. The snow importance factor is **1.1 (Risk Category III)**.
  - iv. Snow loads will be calculated in conformance with the applicable building code. The variables to be considered in calculating these loads are the shape of the roof, the exposure factor, the importance factor, and the ground snow load.

### 4. Snow Drift

- a. Adjacent to vertical projections, such as parapets, changes in roof elevation, etc., The snow load will be increased above the "flat roof" value in conformance with the applicable building code.

### 5. Service Load Paths

- a. It is not anticipated that specific areas will be identified and designed for loadings to allow for movement of mechanical equipment components across the roof.

### 6. Live Load Reduction

- a. Live Load Reduction is a Code-allowed mechanism for reducing the Code-mandated minimum design live load for a given structural member in inverse proportion to the area supported by that member. It is based on a statistical evaluation of the probability of loaded areas being required to support the full design live load. The design live load for various members will be reduced in accordance with the Code-established parameters.

### 7. Concentrated Live Loads

- a. Loads in this section include those loads which are not included in the sections above. These loads include Mechanical equipment and roof top equipment necessary for the function of the building and for the use of the occupants. These loads can be either concentrated in a single location or uniformly distributed over the entire floor surface depending on the type and size of the equipment and loading patterns.

### 8. Floor / Roof Superimposed Dead Loads

- a. These loads are those type of gravity-induced loads intended to provide for the nominally permanent requirements of the building occupancy and construction.
- b. Suspended Ceilings / Finishes
  - i. Acoustical Tile / Drywall: **2 psf**
  - ii. Suspended Mechanical/Electrical/Plumbing: **5 psf**

*In addition to the above uniform load allowance, for piping 12 inches in diameter and greater, the routing will be specifically identified and the support points and anticipated loads shown.*
- c. Roofing
  - i. Standing seam roof at pitched roofs: **2 psf**
  - ii. EDPM roofing at flat roofs: **2 psf**
  - iii. Insulation: **1 psf / ft**

- d. Architectural Floor Finishes
    - i. Certain spaces may have architectural floor finishes that are a significant structural load. These loads will be further evaluated through the next design phase.
  - e. Partitions
    - i. See Floor Live Load for drywall partition loads.
  - f. Cladding
    - i. See Façade Construction for cladding.
9. Wind Loads
- a. The wind loads for lateral load resisting system and the components and cladding will be developed by applicable building code parameters. The variables to be considered in calculating wind loads are the component shape, the area of exposure, its orientation to wind direction, its height above grade, wind speed and the exposure category.
  - b. The Code-established Basic Wind Speed for the Project Site is **120 MPH (ASCE 7-10)**.
10. Seismic Loads
- a. Seismic events (earthquakes) cause loads due to the inherent inertia of a structure - the ground by which the structure is supported moves and the tendency of the structure is not to move. The level/ type of "response" of different elements to any seismic motion generates different design load levels. Seismic loads will be calculated in conformance with Code-established parameters. Project-specific variables to be considered in the calculating of seismic loads which can be established at this time are the seismic spectral response accelerations of the site, the Seismic Use Group, the Site Class, and the Seismic Design Category.
  - b. **Seismic Site Class D** is assumed at the Project Site.
  - c. The seismic importance factor is **1.25 (Risk Category III)**.
  - d. Seismic Loads on the Structural Frame
    - i. The seismic loads on the structural frame are a function of the total weight of the building (and some of the building contents), the configuration of the building, the type and configuration of the building seismic load-resisting system and the dynamic response of the structural system/ elements to the induced motions (structural fundamental period of vibration, response factor, etc.). These parameters, and thus the seismic loads, will be further determined through the next design phase of the Project.
    - ii.  **$S_s=0.112$**
    - iii.  **$S_1=0.052$**
    - iv.  **$S_{ds}=0.119$**
    - v.  **$S_{d1}=0.084$**
    - vi. Seismic Loads on Architectural Components: The building's Code-established Seismic Design Category does not require seismic load evaluation for Architectural components other than parapets supported by bearing walls or shear walls provided that the importance factor ( $I_p$ ) is equal to zero in accordance with ASCE 7.
    - vii. Seismic Loads on Mechanical and Electrical Systems or Components: The building's Seismic Design Category does not require seismic load evaluation for Mechanical and Electrical systems or components.
11. Lateral Loads on Interior Partitions
- Interior walls and partitions, where the loading is not controlled by seismic conditions, will be designed for the following minimum lateral loads in order to provide appropriate safety and stiffness.
- a. Typical partitions            **5 psf**

- b. Surrounding elevator & mechanical shafts      **10 psf**

## 12. Impact Load Factors

Although Code-established gravity loads are developed to include an allowance for ordinary impact, certain conditions as follows are required by Code to have the gravity loads increased by an additional percentage specifically for impact.

- a. Elevator machinery loads      100 percent
- b. Moving elevator loads      100 percent
- c. Light, motor-driven machinery      20 percent
- d. Reciprocating machinery      50 percent
- e. Hangers      33 percent

## 13. Railing Loads

Handrails are intended to be grasped by hand and used primarily for guidance or support. Guardrails are located near open sides of walking surfaces to minimize the possibility of falling. Handrails and guardrails will be designed for the following loading:

- a. Concentrated load: 200 pounds at any point, in any direction
- b. Uniform load: 50 pounds/foot in any direction at the top
- c. Infill load: 50 pounds on one square foot, horizontal, at any point

## D. Movement

Building structures, structural elements, and building components move in response to applied loads. Movement-limiting design criteria are established in order to minimize the degradation of materials applied or attached to the structure and/or to control the perception of movement by occupants or sensitive equipment. These criteria also form the basis for detailing of other systems' connections to the structure.

### 1. Deflection

Deflection is generally considered the downward movement of structural framing members under the influence of applied gravity loads. New structural elements will be designed within the deflection control limits below.

<b>Framing Element</b>	<b>Loading Control Criteria</b>	
Typical Floor Member	Live Load	Span/360
Typical Roof Member	Live Load	Span/240

### 2. Compensation for Self-Weight Deflection

Self-weight Deflection is the construction-related deflection of the structure due to its own weight. Construction procedures to be established such that the "move-in" levelness of the new floors is no less than 1/4 inch in 10 feet 0 inches distance from a column.

### 3. Vibration & Acoustical Transmission

Floor framing systems vibrate in response to various sources of excitation - primarily mechanical equipment and footfall from walking. The magnitude of perceived vibration effects is related to the weight (mass) and stiffness of the floor slab and beams. Acoustical transmission between floors can

be controlled by increasing the mass of the floor slab. The structure will be configured and designed to control vibration and noise transmission as follows:

- a. Mechanical Equipment
  - i. Rooftop mechanical equipment will be located on structural slabs to control the effects of acoustical transmission.
- b. Structural Floor Systems
  - i. Acoustical transmission between floors will be controlled by floor mass. The structural slab will weigh 60 psf to meet a separation STC rating of 55. This increased mass will also minimize the effects of walking heel drop vibration. However, some effects of perceived vibration and acoustic transfer may still be experienced.

#### 4. Drift

Drift is generally considered lateral movement of the building frame due to wind or seismic lateral loadings. The inter-story (between any two 2 floors) and total drift of the structural frame will be designed within the drift control limits of height/400. Drift will also be controlled within detailing limits of building expansion joints.

- a. Seismic Drift will be evaluated in conformance with Code-stipulated criteria including drift magnification factors. Elements of the building will be evaluated relative to their ability to respond to the "magnified" drift.

### E. Durability / Maintenance

Structural systems and components may be subjected to deterioration dependent on the type and severity of exposure. Some of the "normal" durability/maintenance requirements have been previously defined. Project-specific issues are as follows:

1. Exterior exposed concrete will contain appropriate air-entrainment to prevent freeze- thaw degradation.
2. Steel members exposed to the exterior will be either galvanized (minor members) or painted for protection against environmental corrosive effects.

# Landscape Design Narrative

- A. **Limit of Work:** The Limit of Work is shown on the Site Layout and Landscape Concept Plan.
- B. **Surface Site Demolition:** Demolish all paving, site stairs and walls, existing trees and landscaping within the Limit of Work. This includes but is not limited to:
  - 1. Parking and curbs near the proposed handicap parking spaces.
  - 2. Loading space/access road.
  - 3. Stairs and walk to the Study and Learning Center.
  - 4. Handicap parking near and partial walk to the Study and Learning Center east entrance.
  - 5. Stairs and walk to the Science and Technology Center.
  - 6. Trees and miscellaneous landscaping.
  - 7. Site lighting.
  - 8. Signage.
  - 9. White vinyl fence along
- C. **Protection:** Protect existing trees, parking lot pavement, parking lot lighting, curbs, and walks adjacent to the limit of work.
- D. **Grading:** Grade site as shown with smooth, even slope. Stabilize grades >3:1 with biodegradable geofabric. Grade parking as shown to create flat area for handicap parking.
- E. **Paving**
  - 1. Walks: Provide 8' and 6' wide concrete walks as shown on the Conceptual Site Layout and Landscape Plan.
  - 2. Handicap parking: Provide concrete handicap parking and access aisles.
  - 3. Loading Access/Parking: Provide concrete loading access/parking space.
  - 4. Parking and Curbs: Reinstall asphalt parking in kind where demolished. Match grades where new installation meets existing parking to remain.
- F. **Stairs and Walls**
  - 1. Stairs: Provide 8' wide concrete stairs with cheek walls and two handrails.
  - 2. Seat Walls: Provide limestone blocks 2.5' x 1.5' x 4', bury blocks 6" on the low side and set on 8"

compacted aggregate base.

3. Provide retaining wall along loading access/parking.

**G. Landscaping:** Maintain and guarantee all plants for one year after substantial completion.

<b>Type</b>	<b>Size</b>	<b>Quantity</b>
Canopy Tree	3" caliper	14
Ornamental Tree	2" caliper	6
Evergreen Tree	10' height	10
Evergreen Shrub	6' height	12
Large Flowering Shrubs	#5 container	18
Small Shrubs	#3 container	100
Perennials / Ornamental Grass / Groundcover	#1 container	2,700
Lawn	Seed	As shown on plan

**H. Soil and Mulch**

1. If soil does not drain adequately, take measures to restore infiltration capacity by removing and replacing soil, spading, or providing underdrains connected to a positive outfall.
2. Provide planting mixture 3:1 ratio of topsoil / peat humus in all new planting beds and planting pits.
3. Provide 4' depth of amended bioretention soil at rain gardens.
4. Seeded lawns to receive 6" of topsoil.
5. Planting beds and trees to receive 4" shredded bark mulch.

**I. Site Furniture and Lighting**

1. Provide allowance for 4 benches, 2 each trash and recycling receptacles, and 2 bicycle racks.
2. Provide an allowance for pedestrian site lighting and rain garden landscape lighting.

# Site Diagram



- A. Entry Feature/Sign
- B. Handicap Parking
- C. Accessible Walk
- D. Rain Garden
- E. Great Lawn
- F. Stone Seat Wall – Alternate
- G. Stone Stair - Alternate
- H. Reinforced Turf - Alternate
- I. Stone Seat - Alternate
- J. Meditation Garden
- K. Vegetated Steep Slope
- L. Shade Trees
- M. Buffer Planting
- N. Retaining Wall
- O. Loading and Dumpsters
- P. Generator
- Q. 8' Concrete Walks



Proposed Landscape Site Diagram

# Civil Site Design Narrative

The below narrative summarizes the existing utility services, proposed relocations, and relevant code and permitting as it relates to the Student Union Addition study for the Penn State New Kensington Campus.

## A. Utilities

The existing student union has the following utility services provided to the building or in the surrounding areas (see GIS map provided by PSU Facilities):

1. Gas
2. Water
3. Electrical
4. Telecom
5. Sanitary

The proposed addition requires the relocation and establishment of new services for gas lines, water lines, electrical, telecommunications, and sanitary as schematically shown on the Conceptual Utility Relocation Drawing.

Capacity of existing sewer and water mains are assumed to be adequate for the proposed development.

## B. Stormwater

The proposed addition results in the net addition of more than 5,000 SF of impervious area, and as such is subject to the rules and regulations of the Upper Burrell Township Code of Ordinances for stormwater management.

Anticipated earth disturbance is in excess of 1 acre, therefore a National Pollutant Discharge Elimination System permit through the Westmoreland County Conservation District is anticipated, and is subject to the PaDEP stormwater management requirements for volume and rate control.

Upper Burrell requires that the post-development peak discharge rate be minimized to that of the pre-development for the 1yr through 100 yr/24 hr storm events. In addition to rate control, PaDEP requires that the additional volume generated in the 2yr/24 hr storm event (pre-development to post-development) be retained on site.

Stormwater is proposed to be managed via on-site bio-retention/rain gardens to achieve the necessary volume removal via infiltration and detention. Rough calculations based on the pre/post impervious areas were performed to back check the area shown on the conceptual site plan.

We understand that there are existing ponding/stormwater concerns in the courtyard north of the existing student union. No studies or investigations were performed to determine the cause of the issue, but a placeholder for additional yard drains and piping to connect to the existing stormwater system has been included on the relocation plan and in the cost estimate.

The stormwater main located in the existing green space is not expected to be relocated, as the proposed

footprint does not conflict the stormwater line.

### C. Parking

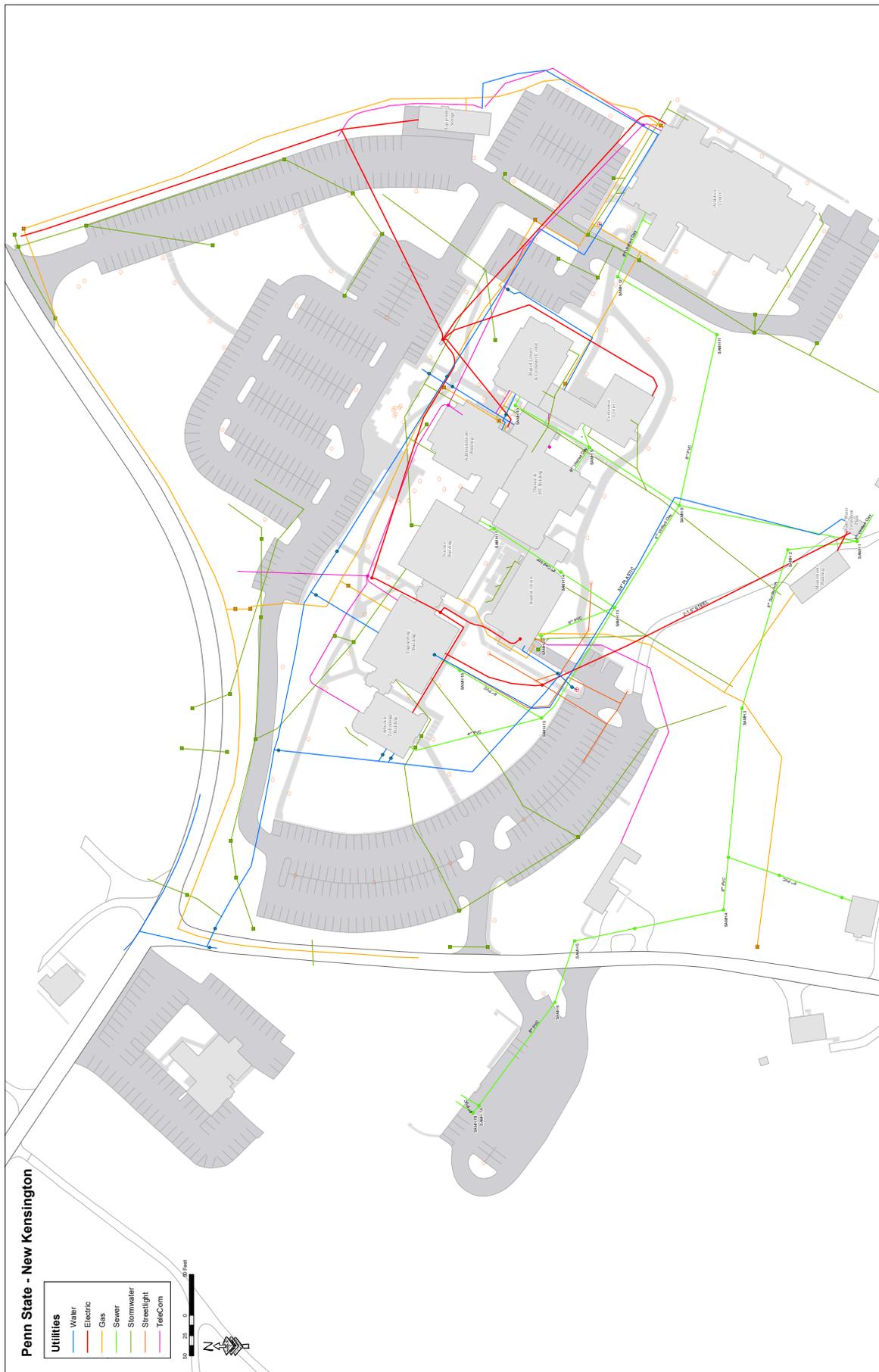
Additional parking is not anticipated to be provided for the addition as the project proposes to relocate existing offices and no new classrooms are proposed. Penn State University also expressed interest in performing a parking study during the design/permitting phase to determine if the campus does need additional parking and submitting a parking variance with Upper Burrell if needed.

### D. ADA

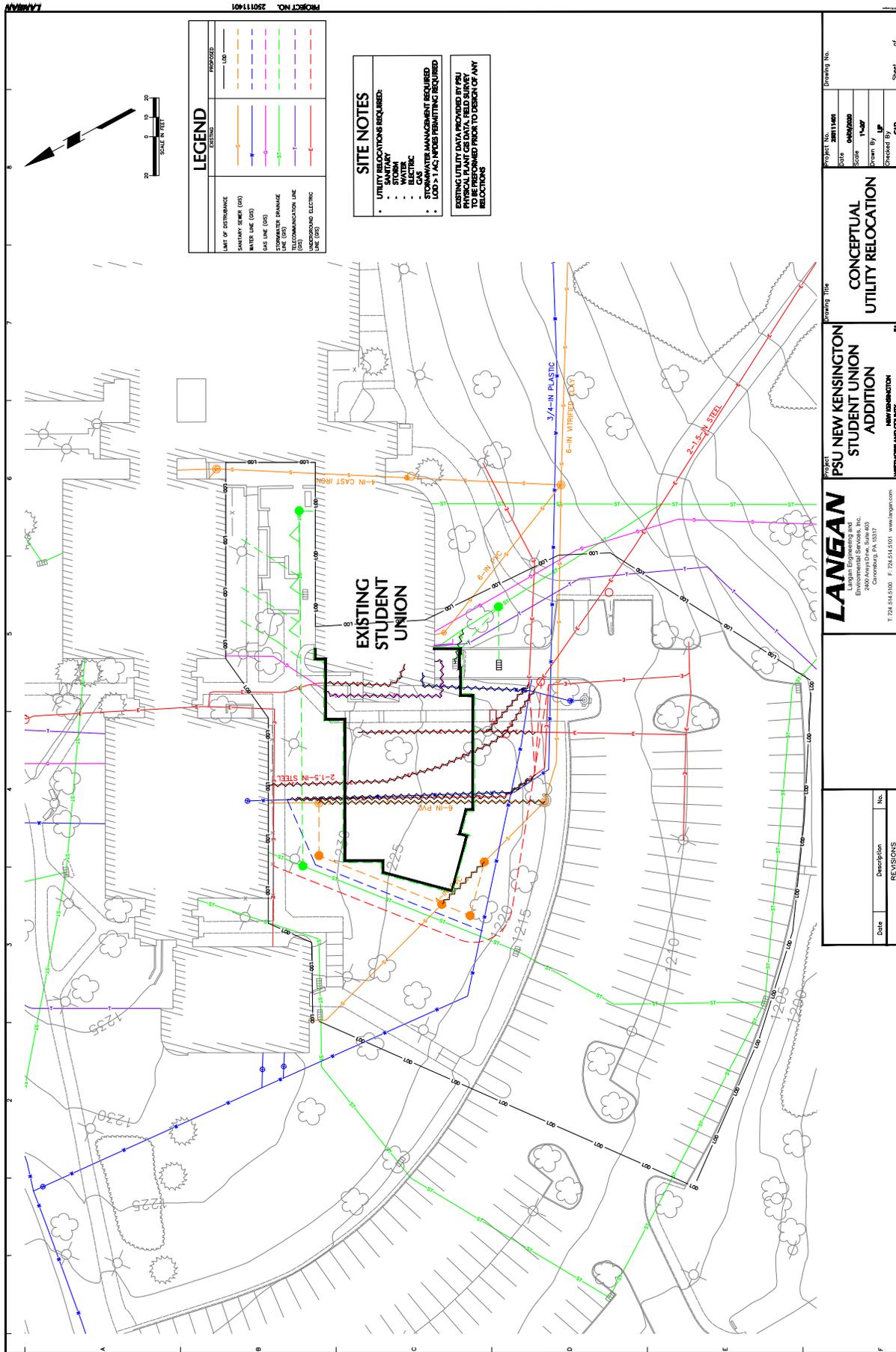
Four (4) ADA spaces are shown on the site plan at the main entrance to ensure compliance with the ADA for number of spots needed required in a single parking lot. The existing two (2) spaces are shown in the current (approximate) location to maintain the accessible route to the east side of campus.

### E. Relevant Regulations / Permits

1. NPDES permit through Westmoreland County Conservation District
2. Sewage Facilities Planning Module through DEP
3. Upper Burrell Township:
  - a. Zoning Approval
  - b. Stormwater Approval



Existing Site Utility Plan



Proposed Site Utility Relocation Plan

<b>LANGAN</b> Langan Engineering and Consulting, Inc. 2400 Arroyo Drive, Suite 400 Carverburg, PA 15117 T: 724.541.5100 F: 724.541.5101 www.langan.com		<b>Project</b> PSU NEW KENSINGTON STUDENT UNION ADDITION NEW KENSINGTON WESTMORELAND COUNTY		<b>Drawing Title</b> CONCEPTUAL UTILITY RELOCATION		<b>Project No.</b> 25011401		<b>Drawing No.</b> 040	
<b>Date</b> 04/08/2025		<b>Description</b> REVISIONS		<b>Date</b> 04/08/2025		<b>Scale</b> Full		<b>Drawn By</b> JLP	
<b>Author</b> JLP		<b>Checked By</b> JLP		<b>Drawn By</b> JLP		<b>Scale</b> Full		<b>Drawn By</b> JLP	

# NOVA



# 8 Cost Analysis

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The NORR design team worked with members of the Penn State New Kensington building committee and representatives of University's Physical Plant Commonwealth Services to right size the building program and scope of work to meet the proposed construction budget and overall project cost. This cost analysis summary is expanded in greater detail over the pages that follow.

The cost summary represents the total estimated cost of construction including General Conditions, Bond, Overhead and Profit, Contingency, and Escalation. It does not include soft costs such as permits, fees, or FFE (furniture, fixtures, and equipment). At the direction of the University, a line item of for hazardous materials abatement cost was added.

# Cost Summary

Renovation Detail:	\$/sf	Cost
Structural	\$ 5	\$64,860
Exterior	\$ 4	\$49,150
Interior Fitout	\$30	\$415,680
Fire Protection & Plumbing	\$ 7	\$98,350
HVAC	\$17	\$236,070
Electrical	\$13	\$177,530
<b>Subtotal</b>	<b>\$75</b>	<b>\$1,041,640</b>
General Conditions / Bond / O. H. & P.	15.0%	\$156,360
Contingency	7.5%	\$90,000
Escalation (13 Months)	4.3%	\$56,000
<b>Subtotal Renovation</b>	<b>\$96</b>	<b>\$1,344,000</b>
<b>Addition Detail:</b>		
Structural	\$62	\$886,810
Exterior	\$59	\$851,690
Interior Fitout	\$72	\$1,031,990
Fire Protection & Plumbing	\$22	\$322,180
HVAC	\$45	\$646,140
Electrical	\$40	\$577,060
Site Work		\$551,070
<b>Subtotal</b>	<b>\$338</b>	<b>\$4,866,940</b>
General Conditions / Bond / O. H. & P.	15.0%	\$730,060
Contingency	7.5%	\$420,000
Escalation (13 Months)	4.3%	\$261,000
<b>Subtotal Addition</b>	<b>\$436</b>	<b>\$6,278,000</b>
<hr/>		
Renovation	\$ 96	\$1,344,000
Addition	\$436	\$6,278,000
<b>Subtotal Construction</b>	<b>\$269</b>	<b>\$7,622,000</b>
Hazardous Materials Abatement		\$125,000
<b>TOTAL CONSTRUCTION</b>	<b>\$269</b>	<b>\$7,747,000</b>

Value engineering options were considered during the analysis of the cost estimate to reduce the overall construction costs. Portions of the project were considered for future phases or alternate funding streams. Several site amenities were identified and are not included in the cost analysis represented herein:

1.	Stone seating stairs	\$135,000
2.	Stabilized turf	\$ 1,760
3.	North Garden Area	\$100,000

The North Garden Area represent the landscaping between the new addition and the existing building to the north. The stabilized turf is reinforced open green lawn that allows for vehicle passage without damage.

#### Mechanical system alternates

As many of the systems are original to the existing Student Union Building, upgrades or replacement were considered. Several mechanical system alternates were discussed including (but not limited to) replacing the existing roof top units in place, relocating the existing unit to the new roof and increasing the size of the new unit to handle the entire addition and existing building. The individual alternates together added up to more than the cost of increasing the size of the new unit to accommodate the facility. The cost summary as shown includes the cost to provide a larger rooftop unit adequate to handle the load of the entire facility, effectively eliminating the need for mechanical systems alternates.

**Project:** PSU New Kensington Student Union  
**Number:** 20036E1R3  
**Client:** NORR  
**Date:** April 8, 2020; April 24, 2020  
**Phase:** Concept



**ESTIMATE SUMMARY**

CODE	DESCRIPTION	28,330	SF		COST
	<b>Renovation</b>	13,940	SF	\$96	<b>\$1,344,000</b>
	<b>Addition</b>	14,390	SF	\$436	<b>\$6,278,000</b>
	<b>Total Construction</b>			<b>\$269</b>	<b>\$7,622,000</b>

**Notes**

Costs are current for Spring 2020; escalation costs are included as noted.  
 Hazardous materials abatement costs, if any, are not included.  
 Furniture, fees and other soft costs are not included except as noted.  
 Items marked with an asterisk (\*) have been priced by others.

**Alternates**

1	Alt. #1 - Relocate MAU to 15' from Roof Edge	1	LS			NIC
2	Alt. #2 - Relocate Chiller to New Roof	1	LS			NIC
3	Alt. #3 - Replace Existing AHUs/Same Location	1	LS			NIC
4	Alt. #4 - Replace Existing AHUs to New Roof	1	LS			NIC
5	Alt. #5 - Sitework Area B/North of Addition	1	LS	Add		<b>\$100,000</b>
6	Alt. #6 - Replace Xformer/Panels/Feeders @ Reno.	1	LS	Add		<b>\$152,000</b>

## ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
5	Alt. #5 - Sitework Area B/North of Addition	5,200	SF		
5.1	Demolition - Paving/Landscaping/Etc/Allowance	5,200	SF	1.00	5,200
5.2	E & S Control - Allowance	1	LS	3,500.00	3,500
5.3	Temporary Fencing - Chain-Link/6' H	120	LF	12.50	1,500
5.4	Grading - Cut & Fill/2' Avg.	390	CY	5.00	1,950
5.5	Paving - Concrete Walkways	1,580	SF	6.75	10,670
5.6	Seat Walls/Stair - Limestone/2.5 x 1.5 x 4/Per Block	6	EA	3,000.00	18,000
5.7	Landscaping - Canopy Trees	2	EA	1,000.00	2,000
5.8	- Ornamental Trees	1	EA	900.00	900
5.9	- Evergreen Trees	2	EA	750.00	1,500
5.10	- Evergreen Shrubs	4	EA	125.00	500
5.11	- Large Shrubs	6	EA	100.00	600
5.12	- Small Shrubs	40	EA	75.00	3,000
5.13	- Perennials/Groundcover	1,800	EA	7.50	13,500
5.14	- Seeding	1,730	SF	0.25	430
5.15	Soils - Planting Soil @ Beds/3' D	210	CY	50.00	10,500
5.16	- Topsoil @ Lawn Areas/6" D	32	CY	60.00	1,920
5.17	Mulch - 4" @ Trees/Planting Beds	21	CY	65.00	1,370
5.18					0
5.19					0
5.20					0
5.21					0
5.22					0
	<b>Subtotal</b>				<b>\$77,040</b>
	General Conditions / Bond / O. H. & P.		15.0%		\$11,960
	Contingency		7.5%		\$7,000
	Escalation (13 Months)		4.3%		\$4,000
	<b>Total Construction</b>				<b>\$100,000</b>
6	Alt. #6 - Replace Xformer/Panels/Feeders @ Reno.				
6.1	Transformer/Replace - 75kVA/480V to 208V	1	EA	7,500.00	7,500
6.2	Panelboards/Replace - 600A/480V	1	EA	12,500.00	12,500
6.3	- 400A/208V	1	EA	8,500.00	8,500
6.4	- 225A/480V	2	EA	7,500.00	15,000
6.5	- 225A/208V	3	EA	5,500.00	16,500
6.6	- 100A/480V	2	EA	5,000.00	10,000
6.7	- 100A/208V	1	EA	4,000.00	4,000
6.8	Feeders/Replace/Allow 75' per Panel - 600A	75	LF	150.00	11,250
6.9	- 400A	75	LF	100.00	7,500
6.10	- 225A	375	LF	50.00	18,750
6.11	- 100A	225	LF	30.00	6,750
6.12					0
6.13					0
6.14					0
6.15					0
	<b>Subtotal</b>				<b>\$118,250</b>
	General Conditions / Bond / O. H. & P.		15.0%		\$17,750
	Contingency		7.5%		\$10,000
	Escalation (13 Months)		4.3%		\$6,000
	<b>Total Construction</b>				<b>\$152,000</b>

**Project:** PSU New Kensington Student Union  
**Number:** 20036E1R3  
**Client:** NORR  
**Date:** April 8, 2020; April 24, 2020  
**Phase:** Concept



**ESTIMATE SUMMARY - Renovation**

CODE	DESCRIPTION	13,940	SF	COST
<b>Renovation</b>				
A	Structural			\$64,860
B	Exterior			\$49,150
C	Interior Fitout			\$415,680
D	Fire Protection & Plumbing			\$98,350
E	HVAC			\$236,070
F	Electrical			\$177,530
	<b>Subtotal</b>			<b>\$75</b>
	General Conditions / Bond / O. H. & P.		15.0%	\$156,360
	Contingency		7.5%	\$90,000
	Escalation (13 Months)		4.3%	\$56,000
	<b>Total Construction</b>			<b>\$96</b>

ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
A	Structural				
A1	Demolition/Stair Tower - Footings & Foundations	70	LF	50.00	3,500
A2	- Earthwork/Sheeting & Shoring	1	LS	-	w/ Addition
A3	- Underpinning/Assume Not Needed	1	LS	-	NIC
A4	- Exterior & Interior Masonry Walls	4,060	SF	8.50	34,510
A5	- Roofing & Framing	340	SF	5.00	1,700
A6	- Stair/per Flight	3	EA	2,500.00	7,500
A7	Demolition/Building - Elevated Slab @ B008	180	SF	7.50	1,350
A8	- Stairs to B008/(4) Risers	4	MH	100.00	400
A9	- Opening @ West Façade @ B008/Approx. 8 x 9	1	LS	2,200.00	2,200
A10	- Temporary Support @ Above	1	LS	2,500.00	2,500
A11	New/Corridor BC02 - Excavate 3' D/Grade	20	CY	125.00	2,500
A12	- Slab-on-Grade/Stone/Vapor Barrier	180	SF	10.00	1,800
A13	- Lintel @ Wall Opg. b/w Corridors BC01 & BC02	1	EA	1,500.00	1,500
A14	New/Corridor BC03 - Build up Area @ New Slab	180	SF	20.00	3,600
A15	- Slab-on-Grade/Stone/Vapor Barrier	180	SF	10.00	1,800
A16					0
A17					0
A18					0
A19					0
A20					0
A21					0
A22					0
A23					0
A24					0
A25					0
A26					0
A27					0
A28					0
A29					0
A30					0
A31					0
A32					0
A33					0
A34					0
A35					0
A36					0
A37					0
A38					0
A39					0
A40					0
A41					0
A42					0
A43					0
A44					0
A45					0
A46					0
A47					0
A48					0
A49					0
A50					0
A51					0
	<b>Subtotal</b>				<b>64,860</b>

ESTIMATE

Proj: PSU New Kensington Student Union  
 Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
B	Exterior				
B1	Demolition - Exterior Walls @ South Façade	220	SF	15.00	3,300
B2	- Windows @ South Façade	130	SF	15.00	1,950
B3	- Stone Sills/Salvage/11' L Each	4	EA	500.00	2,000
B4	- Exterior Walk-in Refrig/Freezer	1	LS	2,500.00	2,500
B5	Roofing - Patch @ Stair Demo/Addition Connection	1	LS	10,000.00	10,000
B6	Glazing - Storefront @ Basement South Façade	350	SF	70.00	24,500
B7	- Window Film @ New Built-in Freezer	90	SF	10.00	900
B8	Exterior Trim - Reinstall Stone Sills from Salvage	4	EA	1,000.00	4,000
B9					0
B10					0
B11					0
B12					0
B13					0
B14					0
B15					0
B16					0
B17					0
B18					0
B19					0
B20					0
B21					0
B22					0
B23					0
B24					0
B25					0
B26					0
B27					0
B28					0
B29					0
B30					0
B31					0
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B33					0
B34					0
B35					0
B36					0
B37					0
B38					0
B39					0
B40					0
B41					0
B42					0
B43					0
B44					0
B45					0
B46					0
B47					0
B48					0
B49					0
B50					0
B51					0
	<b>Subtotal</b>				<b>49,150</b>

## ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
C	Interior Fitout				
C1	Demolition - Partitions/Full-Height/DW	160	LF	35.00	5,600
C2	- Partitions/CMU	560	SF	6.50	3,640
C3	- Partitions/Partial Height/Moveable Walls	130	LF	15.00	1,950
C4	- Doors & Frames	12	EA	250.00	3,000
C5	- Flooring @ Basement Only	5,760	SF	1.25	7,200
C6	- Ceilings @ Basement Only	5,760	SF	1.00	5,760
C7	- Millwork/Benches	25	LF	35.00	880
C8	- Additional Removals/Allowance	13,940	SF	0.75	10,460
C9	Partitions/12.67' H - DW/Stud/Insul/Typ.	210	LF	130.00	27,300
C10	- (2) DW Each Side/Stud/Insul. between Offices	90	LF	200.00	18,000
C11	- Bulkhead @ Interior Glazing Walls	130	LF	60.00	7,800
C12	Doors/Hdw/Frames/per Leaf - SC Wood	3	EA	1,500.00	4,500
C13	- SC Wood w/ Full Glass	17	EA	1,850.00	31,450
C14	Specialty Hardware - Closers/Allow 5	5	EA	350.00	1,750
C15	Interior Glazing - HM Frame/Assume 7' H/Typ.	880	SF	60.00	52,800
C16	- Sidelights/HM Frame	7	EA	800.00	5,600
C17	Floor Prep - Flash Patch @ Tiled Areas	1,810	SF	3.00	5,430
C18	Flooring - Carpet Tile/Typ. @ Basement Offices	430	SY	45.00	19,350
C19	- No Work @ Stairs/Dining/Kitchen/Servery/Etc.	8,180	SF	-	No Work
C20	- Sealed Concrete @ Storage Areas	250	SF	3.25	810
C21	- Large-Format Porcelain Tile @ Corridor	1,650	SF	15.00	24,750
C22	Base - Rubber/Typ.	850	LF	3.25	2,760
C23	- Porcelain Tile @ Corridors	310	LF	14.00	4,340
C24	- Base @ Sub-Basement/Ground Floor	1	LS	-	Existing to Remain
C25	Walls/9' H Avg. - Paint/Typ.	10,180	SF	1.25	12,730
C26	- Slat Wall @ Retail	260	SF	12.50	3,250
C27	- Paint @ Sub-Bsmt/Ground Fl/Repair/Touch-up	1	LS	2,500.00	2,500
C28	Ceiling - ACT/2 x 2/Typ.	4,110	SF	6.50	26,720
C29	- Remove/Reinstall @ Ground Fl. Sprinklers	8,180	SF	2.50	20,450
C30	- Exposed w/ Acoustic Baffles @ Corridor	1,650	SF	15.00	24,750
C31	Soffits - DW/Framed/Painted @ Meeting Rooms	230	LF	60.00	13,800
C32	Rough Carpentry Allowance	1	LS	2,500.00	2,500
C33	Millwork - Desk @ Bookstore/7' L/Allowance	1	LS	5,000.00	w/ FF&E
C34	- Wood Base & Wall Cabs/SS Ctr. @ Kitchenette	8	LF	550.00	4,400
C35	- Shelving @ Storage B014/Allowance	60	LF	225.00	w/ FF&E
C36	Interior Trim - Basement Only/Assume Minor	6,300	SF	0.50	3,150
C37	Specialties - FEC/Signage/Etc.	6,300	SF	1.00	6,300
C38	Kitchen Equipment - Walk-in Ref/Freezer/Allow	1	LS	50,000.00	50,000
C39	Loose Equipment & Furniture	1	LS	-	NIC
C40					0
C41					0
C42					0
C43					0
C44					0
C45					0
C46					0
C47					0
C48					0
C49					0
C50					0
C51					0
	<b>Subtotal</b>				<b>415,680</b>

ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
D	Fire Protection & Plumbing				
D1	<u>Fire Protection</u>				
D2	Demolition - Existing System	1	LS	-	None Existing
D3	Service Entrance	1	LS	-	w/ Addition
D4	Sprinklers - Wet System/Typ.	13,940	SF	5.00	69,700
D5	- Design & Piping Layout/Allowance	1	LS	3,500.00	3,500
D6	<u>Plumbing</u>				
D7	Demolition - Restroom @ Basement/per Fixture	8	EA	300.00	2,400
D8	- Piping & Insul/Cap Piping/Allow per Fixture	8	EA	1,000.00	8,000
D9	Water Heaters - Assume Insta-Hot @ Kitchenette	1	EA	1,250.00	1,250
D10	Fixtures - Sink @ Kitchenette	1	EA	1,000.00	1,000
D11	- Rough-in Allowance/per Fixture	1	EA	350.00	350
D12	DW & San. Piping/Insul. - Allowance per Fixture	1	EA	4,000.00	4,000
D13	Natural Gas - Service Entrance	1	LS	-	w/ Addition
D14	- Piping/Replace @ Existing Kitchen/Allowance	1	LS	5,000.00	5,000
D15	Cut & Patch Allowance - Basement Only	6,300	SF	0.50	3,150
D16					0
D17					0
D18					0
D19					0
D20					0
D21					0
D22					0
D23					0
D24					0
D25					0
D26					0
D27					0
D28					0
D29					0
D30					0
D31					0
D32					0
D33					0
D34					0
D35					0
D36					0
D37					0
D38					0
D39					0
D40					0
D41					0
D42					0
D43					0
D44					0
D45					0
D46					0
D47					0
D48					0
D49					0
D50					0
D51					0
	<b>Subtotal</b>				<b>98,350</b>

ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
E	HVAC				
E1	Demolition - Basement Only	6,300	SF	1.25	7,880
E2	- AHUs/Patch Roof	1	LS	15,000.00	15,000
E3	MAU/Existing - Relocate	1	LS	5,000.00	5,000
E4	- Rigging @ Above & AHUs	1	LS	7,500.00	7,500
E5	- Reroute Ductwork/Allowance	1	LS	5,000.00	5,000
E6	- Cut & Patch/Roofing/Interior Finishes/Allowance	1	LS	7,500.00	7,500
E7	Cooling & Heating Plants	1	LS	-	Existing to Remain
E8	VAV Boxes - Allow 8	8	EA	1,750.00	14,000
E9	Hydronic Piping	1	LS	-	NIC
E10	Ductwork - Sheetmetal/Allow 0.75 Lb/SF @ Bsmt.	4,730	LB	15.00	70,950
E11	- Insulation	3,310	SF	4.00	13,240
E12	- Replace Ductwork to New RTU @ Addition/Allow	2,000	LB	15.00	30,000
E13	- Replace Insulation @ Above	1,400	SF	4.00	5,600
E14	GRDs - Allowance	6,300	SF	1.00	6,300
E15	Baseboard Heating - Modify @ Basement/Allow	1	LS	7,500.00	7,500
E16	Controls - Allow 4 Points per VAV	32	EA	900.00	28,800
E17	Testing & Balancing Allowance	1	LS	2,500.00	2,500
E18	Cut & Patch Allowance - Basement Only	6,300	SF	1.00	6,300
E19	Ground Floor - Modify @ New Walk-ins	40	MH	75.00	3,000
E20					0
E21					0
E22					0
E23					0
E24					0
E25					0
E26					0
E27					0
E28					0
E29					0
E30					0
E31					0
E32					0
E33					0
E34					0
E35					0
E36					0
E37					0
E38					0
E39					0
E40					0
E41					0
E42					0
E43					0
E44					0
E45					0
E46					0
E47					0
E48					0
E49					0
E50					0
E51					0
	<b>Subtotal</b>				236,070

ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
F	Electrical				
F1	Demolition - Gutting @ Basement Only	6,300	SF	1.00	6,300
F2	Transformer/Replace - 75kVA/480V to 208V	1	EA	7,500.00	w/ Alt. #6
F3	Panelboards/Replace - 600A/480V	1	EA	12,500.00	w/ Alt. #6
F4	- 400A/208V	1	EA	8,500.00	w/ Alt. #6
F5	- 225A/480V	2	EA	7,500.00	w/ Alt. #6
F6	- 225A/208V	3	EA	5,500.00	w/ Alt. #6
F7	- 100A/480V	2	EA	5,000.00	w/ Alt. #6
F8	- 100A/208V	1	EA	4,000.00	w/ Alt. #6
F9	Feeders/Replace/Allow 75' per Panel - 600A	75	LF	150.00	w/ Alt. #6
F10	- 400A	75	LF	100.00	w/ Alt. #6
F11	- 225A	375	LF	50.00	w/ Alt. #6
F12	- 100A	225	LF	30.00	w/ Alt. #6
F13	Convenience Power - Recep/Allow @ Bsmt. Only	6,300	SF	3.00	18,900
F14	Wiring - Allowance @ Basement Only	6,300	SF	5.00	31,500
F15	Emergency System - Generator	1	LS	-	Existing to Remain
F16	Equipment Connections - VAVs/Water Heater	9	EA	350.00	3,150
F17	Lighting Fixtures/Allowance - Offices/Corridor/Typ.	5,760	SF	10.00	57,600
F18	- Bookstore/Retail	540	SF	12.50	6,750
F19	- Modify @ New Walk-ins	1	LS	1,500.00	1,500
F20	Lighting Controls - Occ. Sensors/Timed Switches	6,300	SF	2.50	15,750
F21	Tele/Data - Receptacles/Conduit/Allow 25	25	EA	450.00	11,250
F22	- Cabling/Allow per Receptacle	25	EA	300.00	7,500
F23	Fire Alarm System - Devices & Wiring @ Basement	6,300	SF	2.00	12,600
F24	Security System - Assume Not Needed	1	LS	-	NIC
F25	A/V System - Equipment	1	LS	-	Assume by Others
F26	- Conduit & Wiring Allowance	6,300	SF	0.75	4,730
F27					0
F28					0
F29					0
F30					0
F31					0
F32					0
F33					0
F34					0
F35					0
F36					0
F37					0
F38					0
F39					0
F40					0
F41					0
F42					0
F43					0
F44					0
F45					0
F46					0
F47					0
F48					0
F49					0
F50					0
F51					0
	<b>Subtotal</b>				<b>177,530</b>

**Project:** PSU New Kensington Student Union  
**Number:** 20036E1R3  
**Client:** NORR  
**Date:** April 8, 2020; April 24, 2020  
**Phase:** Concept



**ESTIMATE SUMMARY - Addition**

CODE	DESCRIPTION	14,390	SF		COST
<b>Addition</b>					
A	Structural			\$62	\$886,810
B	Exterior			\$59	\$851,690
C	Interior Fitout			\$72	\$1,031,990
D	Fire Protection & Plumbing			\$22	\$322,180
E	HVAC			\$45	\$646,140
F	Electrical			\$40	\$577,060
G	Sitework				\$551,070
	<b>Subtotal</b>			<b>\$338</b>	<b>\$4,866,940</b>
	General Conditions / Bond / O. H. & P.		15.0%		\$730,060
	Contingency		7.5%		\$420,000
	Escalation (13 Months)		4.3%		\$261,000
	<b>Total Construction</b>			<b>\$436</b>	<b>\$6,278,000</b>

## ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
A	Structural				
A1	Cut & Haul - 11' H @ Sub-Basement	160	CY	30.00	4,800
A2	- 6.33' H Avg. @ Basement	1,660	CY	30.00	49,800
A3	Sheeting & Shoring - Allow 75' @ 11' H @ Sub-Bsmt.	830	SF	50.00	41,500
A4	- Allow 125' @ 6.33' H @ Basement	790	SF	50.00	39,500
A5	Slab-on-Grade - 4" Conc/Stone/VB	7,090	SF	7.00	49,630
A6	Elevator Pit - Allowance	1	LS	12,500.00	12,500
A7	Column Footings - Allow 1 per 400 SF of Slab	18	EA	360.00	6,480
A8	Wall Footings - 1 x 3/Typ.	270	LF	40.00	10,800
A9	- North Retaining Wall/Assume 1.5 x 5	140	LF	100.00	14,000
A10	Perimeter Footing Drain - 6" HDPE	410	LF	15.00	6,150
A11	Found. Wall - 8" CMU/Dampproof/Ins/2' H/Typ.	540	SF	35.00	18,900
A12	- 12" Conc/Reinf/WP/Insul/12.67' H @ N Ret. Wall	1,770	SF	40.00	70,800
A13	- 12" Conc/WP/Insul/11' H @ Sub-Bsmt/UG Walls	1,010	SF	37.50	37,880
A14	Roof Decking - Metal	7,210	SF	4.00	28,840
A15	Floor Decking - Composite Deck	7,300	SF	11.00	80,300
A16	Framing/Steel - Roof/Allow 7 Lbs/SF per Report	25	TN	3,750.00	93,750
A17	- Floors/Columns/Allow 9 Lbs/SF per Report	33	TN	3,750.00	123,750
A18	- Dunnage @ Mechanical Unit	1	LS	10,000.00	10,000
A19	- Misc. Metals/Loose Lintels/Plates/Etc.	15%	\$\$	227,500.00	34,130
A20	Fire Stairs - Conc/Metal Pan/Ptd. Stl. Railings/4' W	63	R	1,150.00	72,450
A21	Backup Wall - 6" Stud/Rigid & Batt/Sheathing/VB	4,620	SF	17.50	80,850
A22					0
A23					0
A24					0
A25					0
A26					0
A27					0
A28					0
A29					0
A30					0
A31					0
A32					0
A33					0
A34					0
A35					0
A36					0
A37					0
A38					0
A39					0
A40					0
A41					0
A42					0
A43					0
A44					0
A45					0
A46					0
A47					0
A48					0
A49					0
A50					0
A51					0
	<b>Subtotal</b>				<b>886,810</b>

ESTIMATE

Proj: PSU New Kensington Student Union  
 Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
B	Exterior				
B1	Roofing - EPDM/Insul/Flaashing/Complete	7,210	SF	18.00	129,780
B2	- Accessories/Ladders/Walking Pads/Etc.	1	LS	5,000.00	5,000
B3	Eqpt. Screen - Assume Metal Louvers/Steel Frame	840	SF	80.00	67,200
B4	Coping - Aluminum	520	LF	22.50	11,700
B5	Soffits - Insulated Metal Panel	650	SF	40.00	26,000
B6	Façade - Brick/Typ.	2,290	SF	32.50	74,430
B7	- Manufactured Stone Veneer	2,090	SF	45.00	94,050
B8	- Insulated Metal Panel @ East Façade/Parapet	240	SF	35.00	8,410
B9	- Underground Walls	2,780	SF	-	w/ Structural
B10	Trim - Insulated Metal Panel Band/1.5 W x 1.5 H	270	LF	140.00	37,800
B11	- Faux Wood Sun Fins/1' W	320	LF	75.00	24,000
B12	Glazing - Storefront	1,140	SF	70.00	79,800
B13	- Curtainwall @ South & West	2,690	SF	85.00	228,650
B14	- Ceramic Frit @ 60% of South Façade/Premium	1,260	SF	7.50	9,450
B15	Doors/Hdw/Frames - HM @ Loading/Roof	3	EA	1,500.00	4,500
B16	- Alum/Glass/Storefront Type @ Vestibule/Stairs	5	EA	2,500.00	12,500
B17	- Overhead @ Loading/8 x 8	1	EA	4,800.00	4,800
B18	Specialty Hdw. - Panic Hardware/Allow 8	8	EA	1,250.00	10,000
B19	- Closers/Allow 8	8	EA	350.00	2,800
B20	Loading Dock - Conc/Bumpers/Stairs/Levelers/Etc.	1	LS	15,000.00	15,000
B21	Caulking & Sealants	11,630	SF	0.50	5,820
B22					0
B23					0
B24					0
B25					0
B26					0
B27					0
B28					0
B29					0
B30					0
B31					0
B32					0
B33					0
B34					0
B35					0
B36					0
B37					0
B38					0
B39					0
B40					0
B41					0
B42					0
B43					0
B44					0
B45					0
B46					0
B47					0
B48					0
B49					0
B50					0
B51					0
	<b>Subtotal</b>				<b>851,690</b>

## ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
C	Interior Fitout				
C1	Partitions - DW/Stud/Insul/12.67' H/Typ.	800	LF	130.00	104,000
C2	- (2) DW Each Side/Stud/Insul. b/w Offices/12.67' H	110	LF	200.00	22,000
C3	- (2) DW Each Side/Stud/Insul. b/w Offices/17' H	30	LF	280.00	8,400
C4	- 8" CMU/2-Hr. Rated @ Stairs/Elevator	2,270	SF	32.50	73,780
C5	- Bulkhead @ Interior Glazing Walls	100	LF	60.00	6,000
C6	Furring - DW @ Backup Wall	7,400	SF	3.00	22,200
C7	Doors/Hdw/Frames/per Leaf - SC Wood	21	EA	1,500.00	31,500
C8	- SC Wood w/ Full Glass	16	EA	1,850.00	29,600
C9	- Wood/90-Min. Rated @ Stairs	5	EA	2,000.00	10,000
C10	- Alum/Glass/Storefront Type @ Vestibule	2	EA	2,500.00	5,000
C11	- Overhead @ B006/Alum. & Glass/8 x 8	2	EA	6,000.00	12,000
C12	Specialty Hdw. - Panic Hardware/Allow 2	2	EA	1,250.00	2,500
C13	- Closers/Allow 8	8	EA	350.00	2,800
C14	Interior Glazing - HM Frame/Assume 7' H/Typ.	690	SF	60.00	41,400
C15	- Sidelights/HM Frame	9	EA	800.00	7,200
C16	Flooring - Carpet Tile/Typ.	850	SY	45.00	38,250
C17	- Sealed Concrete @ Storage/Loading	650	SF	3.25	2,110
C18	- Large-Format Porcelain Tile @ Corridors	3,080	SF	15.00	46,200
C19	- 1" x 1" Porcelain Tile @ Restrooms	950	SF	14.00	13,300
C20	- VCT @ Sub-Bsmt/Landings/IT/Storage/Staging	1,980	SF	4.50	8,910
C21	- Walkoff Mats @ Vestibule/Alum. Grille	120	SF	50.00	6,000
C22	- Rubber @ Treads/Risers	63	R	125.00	7,880
C23	Base - Rubber/Typ.	1,950	LF	3.25	6,340
C24	- Porcelain Tile @ Corridors	630	LF	14.00	8,820
C25	- Porcelain Tile @ Restrooms	330	LF	14.00	4,620
C26	Walls/9' H Avg. - Paint/Typ.	24,210	SF	1.25	30,260
C27	- Ceramic Tile @ Restrooms/6' H Typ.	1,980	SF	14.00	27,720
C28	Ceiling - ACT/2 x 2/Typ.	7,550	SF	6.50	49,080
C29	- DW/Framed/Painted @ Stair/20% @ Multipurpose	1,290	SF	12.50	16,130
C30	- Exposed w/ Acoustic Baffles	4,780	SF	15.00	71,700
C31	- Exposed/Painted @ Sub-Basement/Loading	770	SF	2.50	1,930
C32	Soffits - DW/Framed/Painted @ Meeting Rooms	360	LF	60.00	21,600
C33	Rough Carpentry Allowance	14,390	SF	0.35	5,040
C34	Millwork - Wd. Base Cabs/SS Ctr. @ Student Union	20	LF	300.00	6,000
C35	- Wd. Base Cabs/SS Ctr. @ Student Orgs.	24	LF	300.00	7,200
C36	- Shelving @ Storage B014/Allowance	18	LF	200.00	w/ FF&E
C37	- Shelving @ Staging G012/Allowance	16	LF	200.00	w/ FF&E
C38	- Desk @ Health Waiting/5' L/Allowance	1	LS	4,000.00	w/ FF&E
C39	- Vanities/Solid Surface	40	LF	225.00	9,000
C40	Interior Trim - Assume Minor	14,390	SF	0.50	7,200
C41	Toilet Accessories - Solid Polymer Partitions	16	EA	1,000.00	16,000
C42	- Allowance per Gang Room	4	EA	4,300.00	17,200
C43	- Allowance per Single Room	1	EA	1,700.00	1,700
C44	Specialties - FEC/Signage/Etc.	14,390	SF	1.00	14,390
C45	- Operable Partition @ Multipurpose/Assume 12' H	380	SF	100.00	38,000
C46	- Structure @ Above	32	LF	125.00	4,000
C47	Furnishings - Motorized Shades/Switch-Op/Typ.	3,830	SF	17.50	67,030
C48	Elevator - Electric/2-Stop	1	LS	100,000.00	100,000
C49	Loose Equipment & Furniture	1	LS	-	NIC
C50					0
C51					0
	<b>Subtotal</b>				1,031,990

ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
D	Fire Protection & Plumbing				
D1	<u>Fire Protection</u>				
D2	Service Entrance	1	LS	-	w/ Plumbing
D3	Fire Dept. Connection - Allowance	1	LS	1,500.00	1,500
D4	Fire Pump	1	LS	-	TBD
D5	Sprinklers - Wet System/Typ.	14,390	SF	4.75	68,350
D6	- Design & Piping Layout/Allowance	1	LS	3,500.00	3,500
D7	<u>Plumbing</u>				
D8	Service Entrance - Comb. Fire & DW/BFPs/Meter	1	LS	7,500.00	7,500
D9	- Sanitary	1	LS	2,000.00	2,000
D10	Water Heater/Electric - Assume 100 Gallon	1	EA	20,000.00	20,000
D11	- Accessories/Expansion Tanks/Air Sep/Etc.	1	LS	-	Included
D12	Elevator Sump Pump - Incl. Piping	1	EA	3,500.00	3,500
D13	Fixtures - Water Closets w/ Auto-Flush Valves	17	EA	1,250.00	21,250
D14	- Lavs w/ Hands-Free Faucets	17	EA	900.00	15,300
D15	- Sinks/Allow 4	4	EA	1,000.00	4,000
D16	- Electric Water Coolers/Assume 2	2	EA	2,750.00	5,500
D17	- Rough-in Allowance/per Fixture	40	EA	300.00	12,000
D18	DW/San/HW Return Piping/Insul. - Allow per Fixture	40	EA	2,250.00	90,000
D19	- Valves Allowance	15%	\$\$	90,000.00	13,500
D20	Floor Drain Assemblies - Allow 5	5	EA	1,000.00	5,000
D21	Storm Drainage - Roof Drains/Allow 4 per Eng.	4	EA	1,000.00	4,000
D22	- Piping Allowance	14,390	SF	2.00	28,780
D23	Natural Gas - Service Entrance/Meter	1	LS	2,500.00	2,500
D24	- Piping to New RTU/Allow 100' of 1.5" Black Steel	100	LF	40.00	4,000
D25	Testing & Disinfection - Allowance	1	LS	10,000.00	10,000
D26					0
D27					0
D28					0
D29					0
D30					0
D31					0
D32					0
D33					0
D34					0
D35					0
D36					0
D37					0
D38					0
D39					0
D40					0
D41					0
D42					0
D43					0
D44					0
D45					0
D46					0
D47					0
D48					0
D49					0
D50					0
D51					0
	<b>Subtotal</b>				<b>322,180</b>

ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
E	HVAC				
E1	RTU - Gas/VAV Type/33,750 CFM/90 Ton	33,750	CFM	6.50	219,380
E2	VAV Boxes - Allow 25	25	EA	1,750.00	43,750
E3	Hydronic Piping	1	LS	-	NIC
E4	Ductwork - Sheetmetal/Allow 0.75 Lb/SF	10,790	LB	15.00	161,850
E5	- Insulation	7,550	SF	4.00	30,200
E6	GRDs - Allowance	14,390	SF	1.00	14,390
E7	Dampers - Volume/Fire/Smoke/Allowance	14,390	SF	0.50	7,200
E8	Exhaust Fans/Roof-Mtd. - Toilets/General	2	EA	2,500.00	5,000
E9	Unit Heaters/Cabinet Unit Heaters - Allow 5	5	EA	1,750.00	8,750
E10	Baseboard Heating - Assume @ Curtainwall	170	LF	150.00	25,500
E11	Controls - BAS/Allowance	14,390	SF	8.00	115,120
E12	Rigging Allowance	1	LS	5,000.00	5,000
E13	Testing & Balancing Allowance	1	LS	10,000.00	10,000
E14					0
E15					0
E16					0
E17					0
E18					0
E19					0
E20					0
E21					0
E22					0
E23					0
E24					0
E25					0
E26					0
E27					0
E28					0
E29					0
E30					0
E31					0
E32					0
E33					0
E34					0
E35					0
E36					0
E37					0
E38					0
E39					0
E40					0
E41					0
E42					0
E43					0
E44					0
E45					0
E46					0
E47					0
E48					0
E49					0
E50					0
E51					0
	<b>Subtotal</b>				646,140

## ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
F	Electrical				
F1	Electrical Service - 1200A/Secondary Feeder	1	LS	12,500.00	12,500
F2	Pad-Mounted Transformer - Assume 1000kVA	1	EA	40,000.00	40,000
F3	Main Switchboard - 1200A/ 277/480V *	1	EA	29,500.00	29,500
F4	- Feeder @ Above/1200A/Allowance	20	LF	325.00	6,500
F5	Distribution Panels - 600A/208V	1	EA	10,000.00	10,000
F6	Panelboards - 225A/480V	1	EA	7,500.00	7,500
F7	- 225A/208V	2	EA	5,500.00	11,000
F8	Feeders/Allow 75' per Panel - 225A	225	LF	50.00	11,250
F9	Convenience Power - Recep/Floor Boxes/JB/Etc.	14,390	SF	3.00	43,170
F10	Wiring - Allowance	14,390	SF	5.00	71,950
F11	Grounding & Bonding - Allowance	14,390	SF	0.60	8,630
F12	Equipment Connections - Elevator	1	LS	7,500.00	7,500
F13	- RTU	1	LS	5,000.00	5,000
F14	- VAV/WH/UH/EF	33	EA	350.00	11,550
F15	Emergency Power - Rework Panels/ATS/Allow	1	LS	5,000.00	5,000
F16	Lighting Fixtures/Allowance - Offices/Corridor/Typ.	14,390	SF	10.00	143,900
F17	- Loading/Mech/Storage/Stairs/Etc.	1	LS	-	w/ Above
F18	- Decorative Fixtures @ Living Room/Allow	1	LS	-	w/ Above
F19	- Exterior Fixtures/Allow	1	LS	5,000.00	5,000
F20	Lighting Controls - Occ. Sensors/Timed Switches	14,390	SF	2.50	35,980
F21	Tele/Data - (2) 4" Conduit to New Closet/Allowance	100	LF	40.00	4,000
F22	- Receptacles/Conduit/Allowance	14,390	SF	2.00	28,780
F23	- Cabling Allowance	14,390	SF	1.25	17,990
F24	Fire Alarm System - New Control Panel	1	LS	10,000.00	10,000
F25	- Devices & Wiring Allowance	14,390	SF	2.00	28,780
F26	Security System - Equipment	1	LS	-	Assume by Others
F27	- Conduit & Wiring Allowance	14,390	SF	0.75	10,790
F28	A/V System - Equipment	1	LS	-	Assume by Others
F29	- Conduit & Wiring Allowance	14,390	SF	0.75	10,790
F30					0
F31					0
F32					0
F33					0
F34					0
F35					0
F36					0
F37					0
F38					0
F39					0
F40					0
F41					0
F42					0
F43					0
F44					0
F45					0
F46					0
F47					0
F48					0
F49					0
F50					0
F51					0
	<b>Subtotal</b>				<b>577,060</b>

## ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
<b>G</b>	Sitework				
<b>G1</b>	Demolition - Paving/Landscaping/Etc/Allowance	30,000	SF	1.00	30,000
<b>G2</b>	E & S Control - Allowance	1	LS	25,000.00	25,000
<b>G3</b>	Temporary Fencing - Chain-Link/6' H	700	LF	12.50	8,750
<b>G4</b>	Grading - Cut & Fill/2' Avg.	2,150	CY	5.00	10,750
<b>G5</b>	Paving - Mill/Resurface @ Parking	1,070	SY	25.00	26,750
<b>G6</b>	- Heavy-Duty Concrete @ Loading	1,820	SF	10.00	18,200
<b>G7</b>	- Concrete Walkways	3,380	SF	6.75	22,820
<b>G8</b>	- Concrete Curbs	70	LF	20.00	1,400
<b>G9</b>	- 12" Aggregate @ Stabilized Turf	880	SF	2.00	w/ Site Features
<b>G10</b>	Markings - Striping/Crosswalks/Symbols/Etc/Allow	1	LS	1,000.00	1,000
<b>G11</b>	Signage - ADA Parking	6	EA	500.00	3,000
<b>G12</b>	- Entry Sign/Allowance	1	LS	7,500.00	7,500
<b>G13</b>	Stairs - Concrete/per LF of Riser	120	LFR	75.00	9,000
<b>G14</b>	- Handrails	40	LF	125.00	5,000
<b>G15</b>	Seat Walls/Stair - Limestone/2.5 x 1.5 x 4/Per Block	45	EA	3,000.00	w/ Site Features
<b>G16</b>	Retaining Walls - Assume Conc. w/ Cap/2' H Avg.	110	LF	270.00	29,700
<b>G17</b>	Site Furniture - Benches	4	EA	1,500.00	w/ FF&E
<b>G18</b>	- Trash/Recycling Bins	4	EA	1,500.00	w/ FF&E
<b>G19</b>	Site Lighting - Allow 4 Pole-Mounted Fixtures	4	EA	4,000.00	16,000
<b>G20</b>	- Wiring & Trenching/Allowance	200	LF	35.00	7,000
<b>G21</b>	Landscaping - Canopy Trees	12	EA	1,000.00	12,000
<b>G22</b>	- Ornamental Trees	5	EA	900.00	4,500
<b>G23</b>	- Evergreen Trees	8	EA	750.00	6,000
<b>G24</b>	- Evergreen Shrubs	8	EA	125.00	1,000
<b>G25</b>	- Large Shrubs	12	EA	100.00	1,200
<b>G26</b>	- Small Shrubs	60	EA	75.00	4,500
<b>G27</b>	- Perennials/Groundcover	900	EA	7.50	6,750
<b>G28</b>	- Seeding	16,790	SF	0.15	2,520
<b>G29</b>	Soils - Planting Soil @ Beds/3' D	110	CY	50.00	5,500
<b>G30</b>	- Topsoil @ Lawn Areas/6" D	310	CY	60.00	18,600
<b>G31</b>	Mulch - 4" @ Trees/Planting Beds	12	CY	65.00	780
<b>G32</b>					0
<b>G33</b>					0
<b>G34</b>					0
<b>G35</b>					0
<b>G36</b>					0
<b>G37</b>					0
<b>G38</b>					0
<b>G39</b>					0
<b>G40</b>					0
<b>G41</b>					0
<b>G42</b>					0
<b>G43</b>					0
<b>G44</b>					0
<b>G45</b>					0
<b>G46</b>					0
<b>G47</b>					0
<b>G48</b>					0
<b>G49</b>					0
<b>G50</b>					0

Continued on Next Page

ESTIMATE

Proj: PSU New Kensington Student Union

Date: April 8, 2020; April 24, 2020

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
G	Sitework/Continued				
G51	<u>Site Utilities</u>				
G52	Demolition - Piping Incl. Trenching	870	LF	30.00	26,100
G53	- Cap @ Existing/per Location	16	EA	750.00	12,000
G54	Domestic Water - Piping/0.75" PVC/Incl. Trenching	130	LF	35.00	4,550
G55	- Piping/6" DI/Incl. Trenching	40	LF	100.00	4,000
G56	- Connections to Existing	3	EA	1,250.00	3,750
G57	Sanitary - Piping/8" PVC/Incl. Trenching	190	LF	45.00	8,550
G58	- Grease Interceptor/Assume 100 Lbs.	1	EA	10,000.00	10,000
G59	- Manholes	4	EA	7,500.00	30,000
G60	- Connections to Existing	3	EA	1,250.00	3,750
G61	Storm - 12" HDPE/Incl. Trenching/per Engineer	500	LF	55.00	27,500
G62	- Connections to Existing	1	EA	1,500.00	1,500
G63	- Area Drains/Allow 3	3	EA	1,250.00	3,750
G64	- Cleanouts/Allow 3	3	EA	500.00	1,500
G65	- Manholes	1	EA	7,500.00	7,500
G66	- Bioretention Area	1,030	SF	30.00	30,900
G67	- Water Treatment Device/Assume 1000 Gallon	1	EA	10,000.00	10,000
G68	Natural Gas - Assume 2" Steel	30	LF	50.00	1,500
G69	- Connections to Existing	1	EA	1,000.00	1,000
G70	Electrical - Ductbank/(2) 1.5" C/Incl. Trenching	350	LF	90.00	31,500
G71	- Ductbank/(4)#600kcmil in (3) 4" C/Incl. Trench	60	LF	400.00	24,000
G72	- Connections to Existing	5	EA	3,500.00	17,500
G73	Communications - Ductbank/Incl. Trenching	30	LF	100.00	3,000
G74	- Connections to Existing	1	EA	2,000.00	2,000
G75					0
G76					0
G77					0
G78					0
G79					0
G80					0
G81					0
G82					0
G83					0
G84					0
G85					0
G86					0
G87					0
G88					0
G89					0
G90					0
G91					0
G92					0
G93					0
G94					0
G95					0
G96					0
G97					0
G98					0
G99					0
G100					0
	<b>Subtotal</b>				<b>551,070</b>

**Project:** PSU New Kensington Student Union  
**Number:** 20036E1R3  
**Client:** NORR  
**Date:** April 8, 2020; April 24, 2020  
**Phase:** Concept



**AREA SUMMARY**

<b>Floor</b>	<b>New</b>	<b>Renov</b>	<b>Misc.</b>	<b>Subtotal</b> (Per Floor)
Sub-Basement	390	500		890
Basement	7,090	6,300		13,390
Ground Floor	6,570	6,130		12,700
First Floor	340	1,010		1,350
<b>Total</b>	<b>14,390</b>	<b>13,940</b>	<b>0</b>	<b>28,330</b>
Check Sum				28,330



### Project Team

- Architect: NORR
- Landscape Architect: Moore Design Associates
- MEP Engineer: CJL Engineering
- Structural Engineer: NORR
- Civil Engineer: Langan
- Cost Estimator: Becker & Frondorf