

DATE: September 12, 2011

SUBJECT: EAB Addition and Renovation,  
Penn State Harrisburg

TO: Bohlin Cywinski Jackson/OPA Architecture  
Crabtree, Rohrbaugh & Associates/Perkins and Will  
H2L2  
MKSD Architects  
Perkins Eastman  
Schradergroup Architecture  
Spillman Farmer Architects  
Stantec  
VSBA  
WMF

Congratulations, your firm has been selected as one of the firms on a long list for the design of the above referenced project. The Selection Committee will review responses to this Request for Proposals and identify a short list of three firms to be interviewed.

It is necessary that you provide us with the information requested in the enclosed questionnaire no later than **October 6, 2011 at Noon**. Please answer all of the questions in the order requested. This will provide uniform information on all firms for evaluation and ultimate presentation to the Board of Trustees. We encourage you to be as brief as possible without sacrificing accuracy and completeness. Please submit to my office **twelve copies** of all materials. In order to better understand our goals and the major issues driving this project, we encourage you to visit the site; please contact Ed Dankanich, Director of Business Services at Penn State Harrisburg (tel: 717-948-6235, E-mail: [EPD1@psu.edu](mailto:EPD1@psu.edu)) to schedule your site visit and arrange a meeting with the appropriate individuals. Please contact Adam Dent, the Project Manager (E-mail: [AFD101@psu.edu](mailto:AFD101@psu.edu)) or me if you have any additional questions.

In addition to the questionnaire, in order to help you formulate a response, enclosed you will find excerpts from the WMF feasibility study providing pertinent programmatic information. Also included is a non-binding fee proposal form for you to fill out; please submit one copy of this form under separate cover; to assist you in filling out this form please assume a construction budget of \$8,000,000 and an FF&E budget of \$345,000. Finally, you will also find a copy of our Form of Agreement 1-P; please review this agreement to ensure that your firm accepts all terms and conditions as written.

A decision regarding the firms to be interviewed will be made by October 18, 2011 and posted to our web site. Interviews with the three short-listed firms will be held on October 28, 2011.

Results of the interviews will be announced at the Board of Trustees meeting on November 11, 2011 and posted to our web site.

We appreciate your cooperation and interest in preparing this material. If the Board selects your firm, we will be looking forward to working with you on the development of this important project.

Please do not hesitate to call me if you have any other questions.

Sincerely,

David Zehngut  
University Architect  
207 Physical Plant  
University Park, PA 16802  
(814) 863-3158, fax (814) 863-7757  
E-mail dxz3@psu.edu

Enclosures

cc: Selection Committee Members

## QUESTIONNAIRE

EAB Addition and Renovation  
Penn State Harrisburg

The following items of information must be supplied to the University. We have made no attempt to provide sufficient space below for you to fill in blanks but expect that you will provide the information requested on your own letterhead paper. **Failure to answer all questions will be reason for disqualifying your team from further consideration.** Please provide **twelve copies** of all material submitted. The deadline for submission is **October 6, 2011 at Noon.**

1. Please describe your approach to this project. Include a description of the scope of work your team will provide.
2. In addition to any further thoughts you might have on the essence of this project, we would like to see further evidence of your firm's ability to translate design intentions into a meaningful project (including the site). Therefore, please discuss in detail, but in no more than one or two pages, an example from your portfolio relevant to our project that best indicates the appropriate resolution of an understanding of the uniqueness of a project, design intentions, and translation of those design intentions into a meaningful and synthesized final solution.
3. Qualifications and experience of the lead design team members, **including consultants**, to be assigned to this project. Provide a clear indication of the roles to be performed by each **individual**. Please be very specific regarding the personal involvement and on-site participation of each lead design **individual**.
4. Consultant firms, if any, proposed for this project:

<u>Firm</u>	<u>No. of Projects Worked With Your Firm</u>	<u>Total Amt. Value</u>
Structural Engineers		
Mechanical Engineers		
Electrical Engineers		
Landscape Architects		
Interior Designers		
Cost Estimators		
Others		

5. Experience of the firm and any consultants in the design of facilities similar to the ones proposed (college and other), completed or under construction during the past ten years. List for each the completion date, final construction cost and gross square feet provided, and be very specific about the services provided by your firm. Identify those specific projects included in the proposed design team experience listed in #3 above.
6. Experience of the firm and any consultants in the design of college and university buildings (not already included in # 5 above) completed or under construction during the

past ten years. List for each the completion date, final construction cost and gross square feet provided, and be very specific about the services provided by your firm. Identify those specific projects included in the proposed design team experience listed in #3 above.

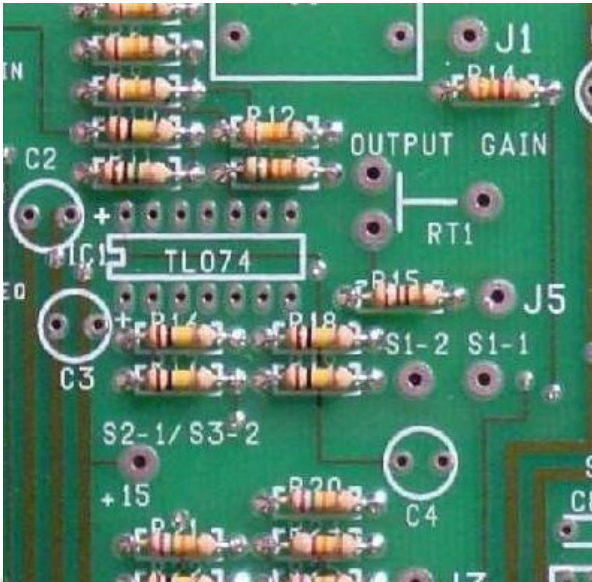
7. Evidence of the team's commitment to sustainable design.
8. List five client references for similar scope projects completed during the past ten years, giving name and telephone number. In order to give us an indication of your cost control track record, please **provide accurate and complete data indicating the gross square foot area, the design estimated cost, bid cost, the final total construction cost and the bid date for each project.** Please explain the reason for any major discrepancies between estimated, bid and final construction costs. Please make sure the telephone number of each client reference is current.
9. Graphic examples of selected projects personally done by **the lead design architect**, including brief description and completion date.
10. Please provide a proposed design schedule for each component of this project in graphic form allowing one week for any necessary Penn State University review. Assume the design process will start in December, 2011.
11. List errors and omissions insurance coverage.
12. Number of personnel in present firm(s): Architects \_\_\_\_\_ Engineers \_\_\_\_\_  
Interior Designers \_\_\_\_\_ Landscape Architects \_\_\_\_\_ Others \_\_\_\_\_

Which of the above are professionally registered?

EDUCATIONAL ACTIVITES BUILDING RENOVATION  
FEASIBILITY STUDY

FOR PENN STATE HARRISBURG

WMF Project Number 2010.055  
PSU Project Number: 01-03602.00  
March 2011





Study Team

This report was prepared as a joint effort by a team from Penn State University, and the consultant team of Weber Murphy Fox and Century Engineering.

Primary contacts were as follows:

Penn State University:

Dr. Mukund Kulkarni, Chancellor	msh5@psu.edu
Dr. Omid Ansary. Interim Sr. Associate Dean for Academic Affairs	axa8@psu.edu
Dr. Jerry Shoup, Interim Director, School of Science, Engineering and Technology	jfs1@psu.edu
Dr. Don Holtzman, Senior Director, Student Affairs and Enrollment Services	drh2@psu.edu
Edward Dankanich, Director of Business Services	epd1@psu.edu
Adam Dent PE, PSU CWS Project Manager	afd101@psu.edu

Weber Murphy Fox

Anna Childe AIA, Architect	achilde@wmf-inc.com
Dennis Wilkins AIA, Architect	dwilkins@wmf-inc.com
Robert Lingenfelter RLA, ASLA, Land Development	rlingenfelter@wmf-inc.com

Century Engineering

Steve Heidlauf, PE	Electrical Consultant	sheidlauf@centuryeng.com
Richard Lindemon, PE	Mechanical Consultant	rlindemon@centuryeng.com

Background

Study Parameters

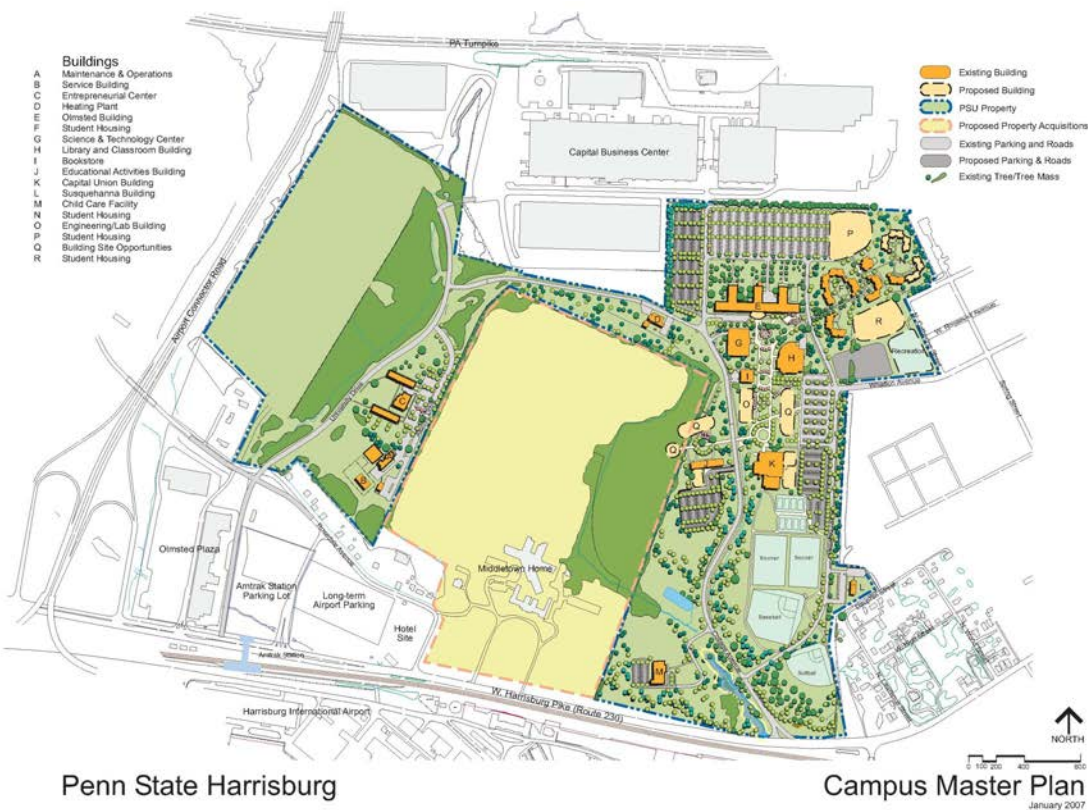
In Fall 2010, WMF was asked by the University to prepare a broad based feasibility study for renovations and additions to the existing Educational Activities Building.

The building will be used for classrooms, labs and offices to support various programs currently offered by the University.

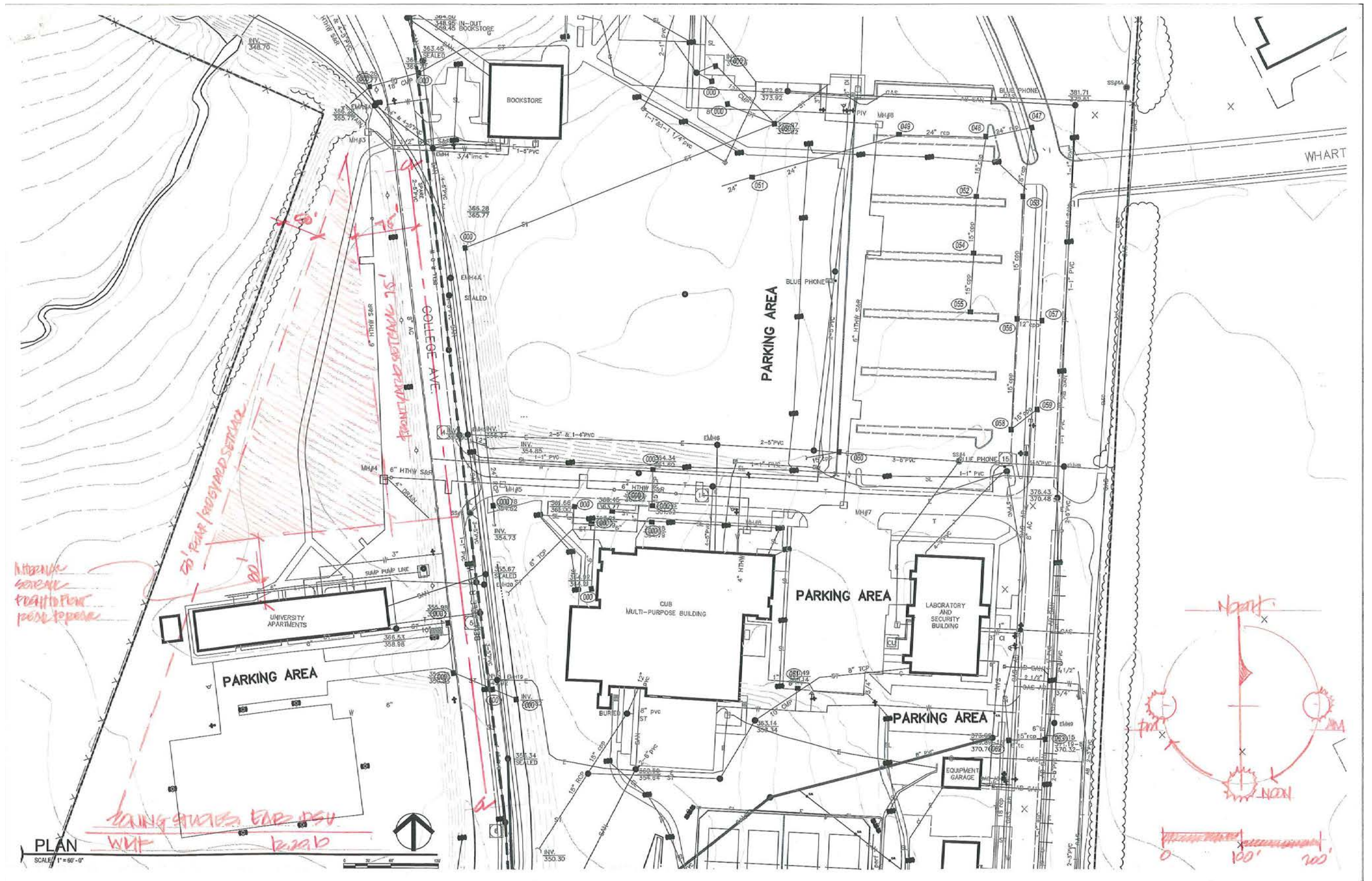
WMF assisted Penn State in preparing an outline of intended uses for the facility, as well as evaluating options for orientations and locations of proposed additions. Opportunities and constraints posed by the existing building, utility, site and zoning were to be examined.

Educational Activities Building:

The existing 17,000 sf building sits on a plateau on the western edge of the main part of campus. It is accessible from College Avenue via a steep driveway and stair to the east of the building, and via a gently sloped pedestrian path from the North. The building was originally built as barracks in 1959, and has undergone several renovations since then, including the addition of an elevator in the 1990's and interior reconfigurations. The building structure appears to be in good shape, with the possible exception of rusting lintels at the windows and typical signs of age of a building of this vintage. (See MPE Existing conditions report, attached). The roof also is needing replaced.







Site Diagram

EAB Addition Renovation Study 12-17-2010

Study Phase



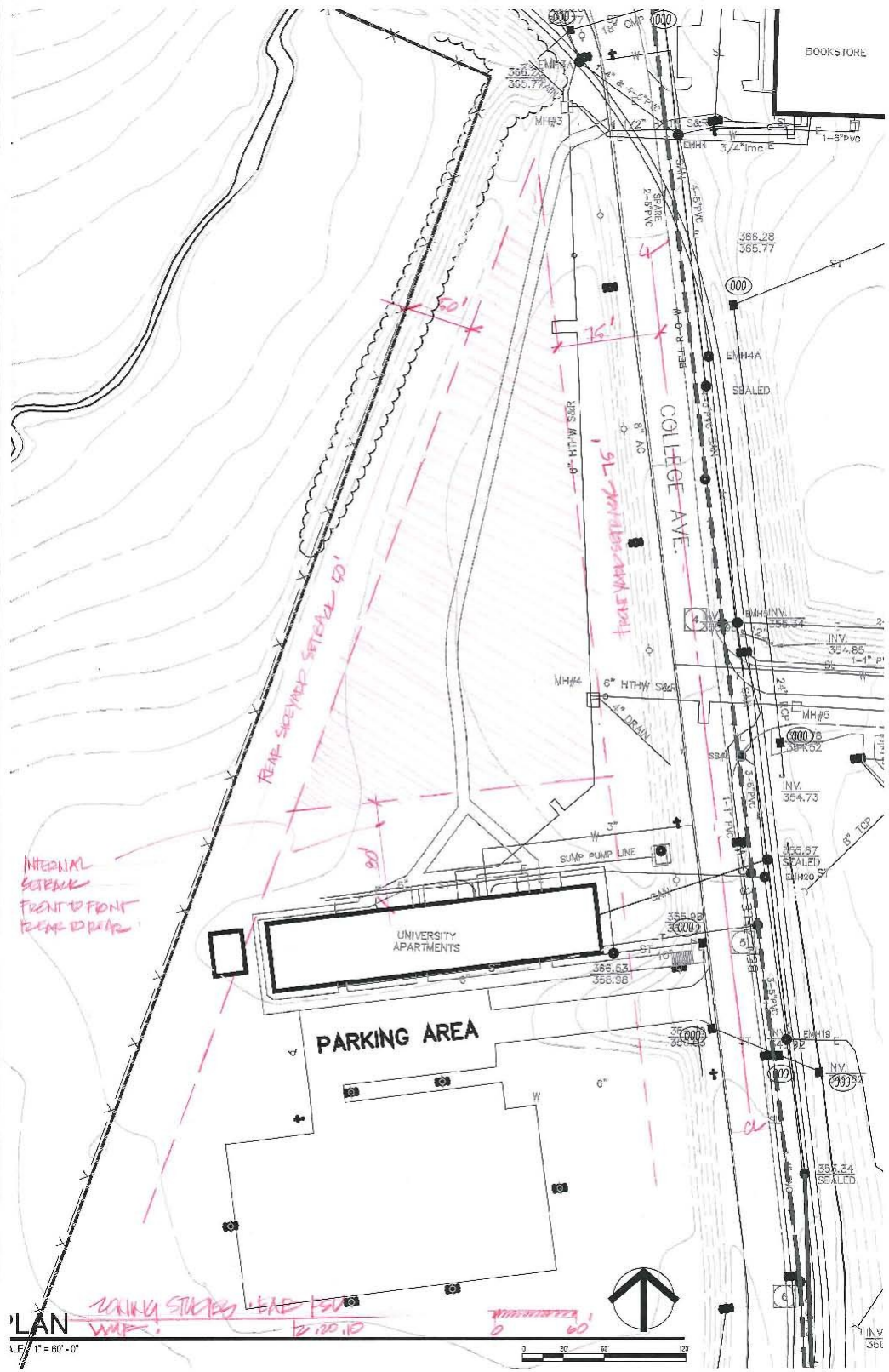
# Zoning Analysis

The project site is located within the Campus property line. The Campus is adjacent to and located in the Educational-Institutional Zoning District (E-I). District regulations are included in the Appendix. General site requirements include:

- 75' Front yard Setback from Street or Driveway Center Line or 50' to the right-of-way line, whichever is greater.
- 50' Side yard and Rear yard property line
- 40' Maximum Building height

Preliminary discussions with Township Zoning and Campus officials took place at the Township office on February 18, 2011. Comments from the meeting include:

- No buffer yard requirements apply however a 20' setback has been requested where driveway access occurs in Side or Rear yards.
- 5' Minimum setback from building for vehicular paving.
- 18' Minimum width driveway access for Fire Vehicles.
- Each project phase is subject to the Township Land Development Review process (Zoning Permit Required).
- Parking will be provided in overall campus parking plan.
- Stormwater management design must comply with Township Standards and PA DEP Regulations.
- Zoning Use will not change.
- Building Code requirements are subject to the Labor and Industry review process.



## Site Studies

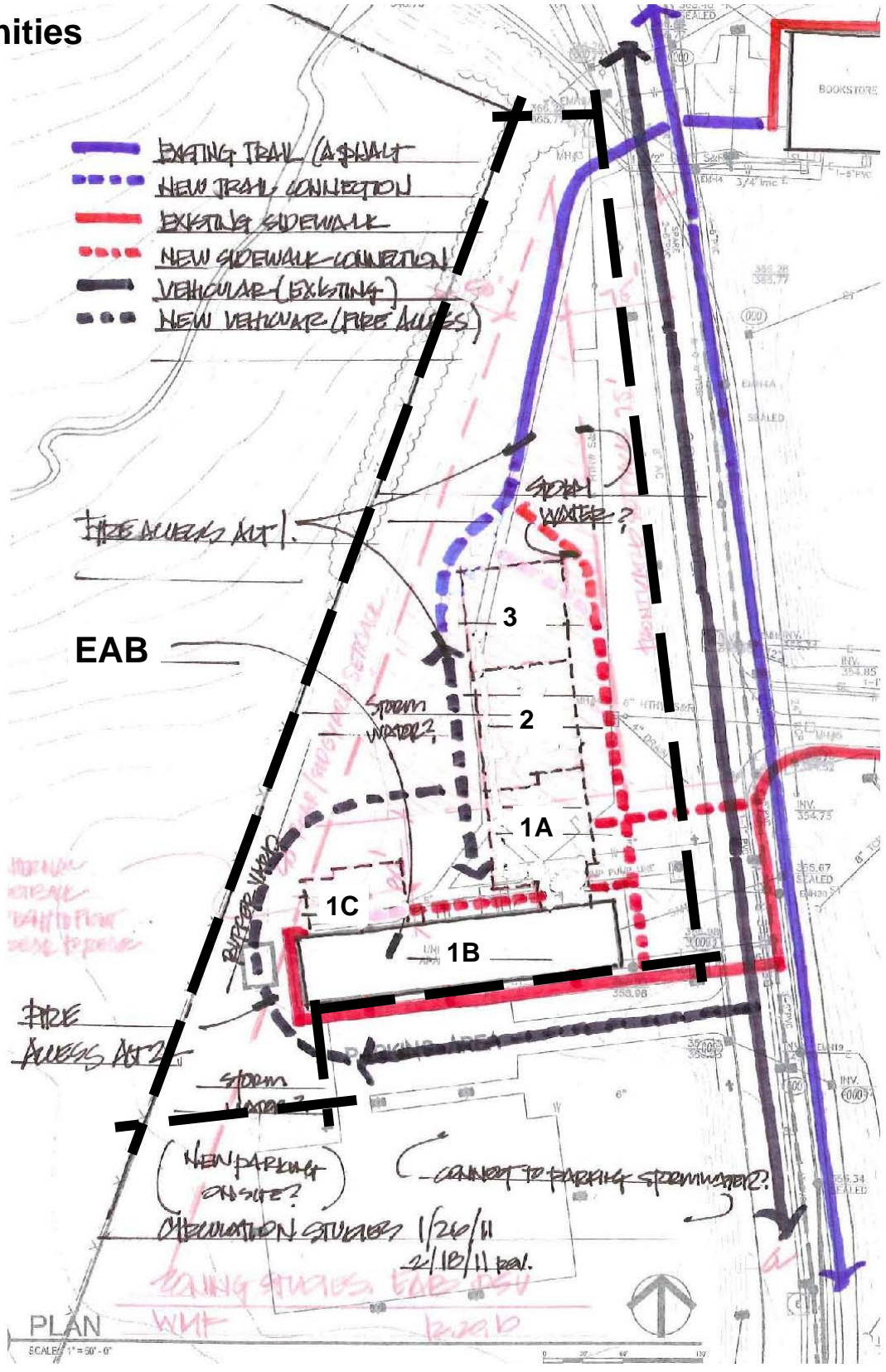
EAB Addition Renovation Study February-2011

## Study Phase

# Circulation Opportunities

The study looked at several circulation options including criteria related to Emergency/Vehicular access, campus pedestrian flow and accessibility. In general pedestrian and Emergency/Vehicular access to the site exists from College Avenue at the parking lot entrance. Accessible parking spaces exist at the building and there is an accessible pathway from the Campus core and Bookstore to the north.

The study diagram suggests connecting new concrete pedestrian pathways 8' wide around the perimeter of the building additions allowing for a future stairway to O Street. The diagram also explores connecting new 18' wide concrete driveways for fire truck access around the existing building's west side, north to the Bookstore. It is anticipated that small box truck receiving will be necessary for Building Phase 1C and zoning officials have requested minimizing the impervious area within the property line setback. Final service yard access and layout must be confirmed during the project's design phase.





Stormwater Observations

In general the site gradually pitches south to an existing stormwater facility and the diagram suggests utilizing and if necessary expanding the existing facility to accommodate all project phases proposed. This allows for long-term design, land development approval, and construction efficiencies and should result in overall project savings.

Initial site observations revealed two opportunities regarding conveyance to the facility. Potential conveyance includes connections to existing catch basins at the EAB driveway entrance and vegetated swales east of College Avenue. Or, a new subsurface pipe located in the sideyard to the west.

New conveyance and an expanded facility system have been included for estimating purposes; however, site design for stormwater management must be confirmed during the project's design phase and is contingent on approved phasing and existing system capacity. Stormwater facilities must comply with current Township Land Development requirements and Township approval.



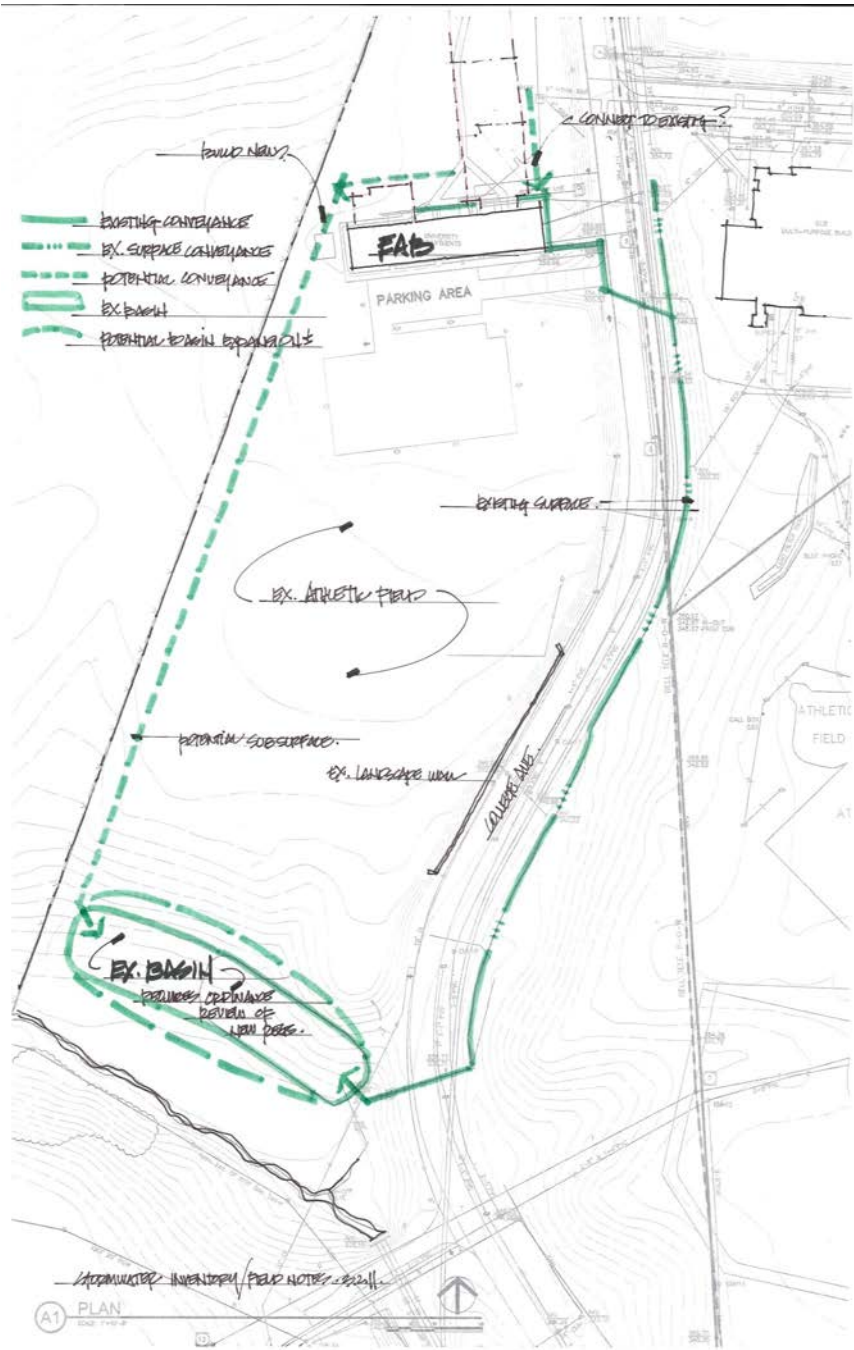
Existing Stormwater Facility South of EAB



Existing Surface Conveyance East of College Avenue



Existing Stormwater Facility from Campus Entrance



Site Studies

EAB Addition Renovation Study February-2011

Study Phase

**CIVL LABS:**

Concrete/Asphalt Lab 1500 SF  
Desired Relationship to Other Space Adjacencies:

The Concrete/Asphalt Teaching Lab needs to be adjacent to the “CONCRETE CURING” and “PREPARARTION” rooms. The “Curing” room is a controlled room with water spraying system, humidity control, waterproof lighting and a drainage system. The “Preparation” room will include a portable concrete mixer, raw

Preparation/ Curing Area. Square feet: 1000 SF  
Desired Relationship to Other Space Adjacencies:

PREPARARTION” room will require being adjacent to Concrete/Asphalt Teaching Lab. The Teaching laboratory is an integral part of the preparation area.  
Space Needs:

PREPARARTION” room will require an overhead garage door to have access to an outside working area. This space provides concrete mixing.

Teaching Lab - Geotechnical (Soils) Square feet: 1500  
Desired Relationship to Other Space Adjacencies:  
Research Lab Room - Geotechnical (Soils)

Strength of Materials Lab Square feet: 1500 SF

Desired Relationship to Other Space Adjacencies:

The Strength of Materials laboratory needs to be near the “CONCRETE CURING” room with concrete samples. Also needed, a separate control room to house a testing furnace for treating material samples for specific lab exercises.

Student Project Lab Square feet: 1000  
Desired Relationship to Other Space Adjacencies: (none listed)

Structures Lab Square feet: 1,500 SF  
Desired Relationship to Other Space Adjacencies:

An overhead garage door with access to outside working area.  
Hard surface (bituminous or concrete) outside overhead door for students to conduct outdoor exercises.  
To be adjacent to Preparation/curing area.  
Equipment: Overhead Crane to lift large loads for moving.

Structures/Research Lab Square feet: 1000

Desired Relationship to Other Space Adjacencies:

1) An overhead garage door with access to an outside working area.

2) Hard Surface (Bituminous or concrete) outside overhead door for students to conduct outdoor exercises.

Overhead Crane to extend to outside 20 foot ceiling

Space Title: Surveying Lab Square feet: 750  
Desired Relationship to Other Space Adjacencies: Outside door

**C E Research Labs**

Nondestructive Testing of Infrastructures Lab with office/ teaching area 12x20 Square feet: 240  
Desired Relationship to Other Space Adjacencies:  
Adjacent to Structures Lab as well as preparation/curing area.

Geotechnical (Soils) Lab with office/ teaching area Square feet: 240 (12'x20')  
Desired Relationship to Other Space Adjacencies:  
Geotechnical (Soils) Lab. Some facilities of the teaching lab will supplement this lab.

Bridge Research Lab. with an Office (12'x20') Square feet: 240  
Desired Relationship to Other Space Adjacencies:  
Near the Structure Lab.

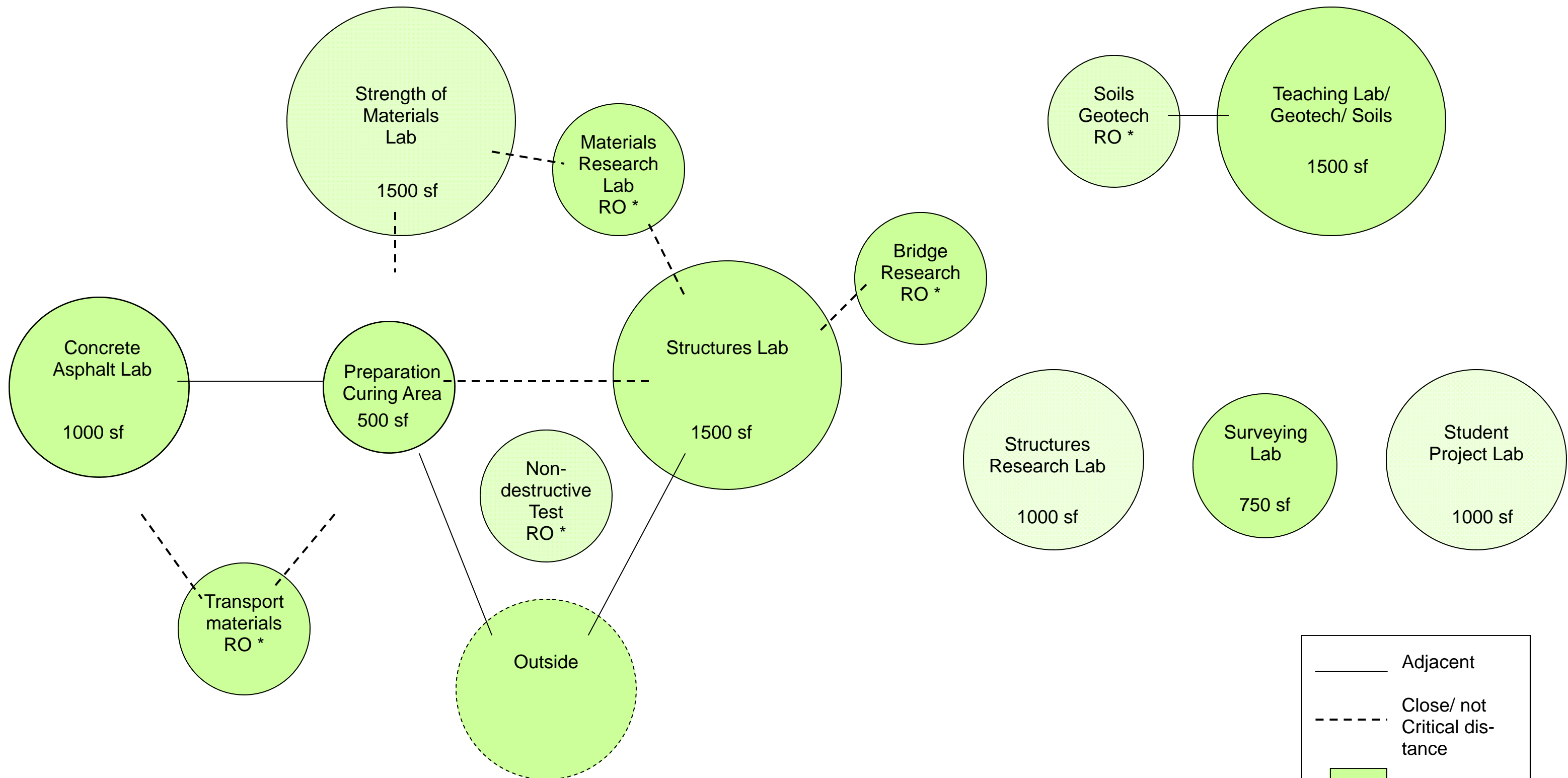
Materials Research Lab w/office/ teaching area 12x20 240 sf

Desired Relationship to Other Space Adjacencies:  
Adjacent to Materials and Structures Lab.

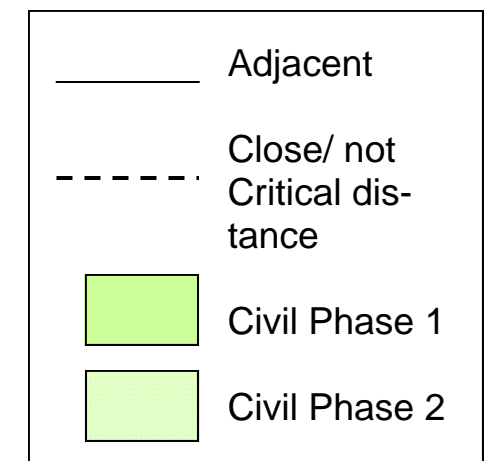
Transportation/Materials Research Lab w/office/ teaching area 12x20 Square feet: 240  
Desired Relationship to Other Space Adjacencies:  
Adjacent to Concrete/Asphalt Materials Lab as well as preparation/curing area

**Engineering Lab Adjacencies      Civil Labs**





\*Research Offices 240 sf



Engineering Lab Adjacencies      Civil Labs

EAB Addition Renovation Study 02-28-2011

Study Phase

**MECHANICAL LABS:**

Control & Vibration Lab

Square feet: 1000 ft<sup>2</sup>

Desired Relationship to Other Space Adjacencies:

This lab should be located away from any other with heavy equipment that would cause background vibrations.

**ELECTRICAL:**

Power Square feet: 1500

Desired Relationship to Other Space Adjacencies: none?

Automation & Robotics Square feet: 1000

Desired Relationship to Other Space Adjacencies: EE/EET Equipment Room

Signal Integrity Center Square feet: 1500

Desired Relationship to Other Space Adjacencies: EE/EET Equipment room

Technician / Equipment Room Square feet: 1500

Desired Relationship to Other Space Adjacencies: All EE/EET Labs

Senior Project Room Square feet: 1000

Desired Relationship to Other Space Adjacencies: (none?)

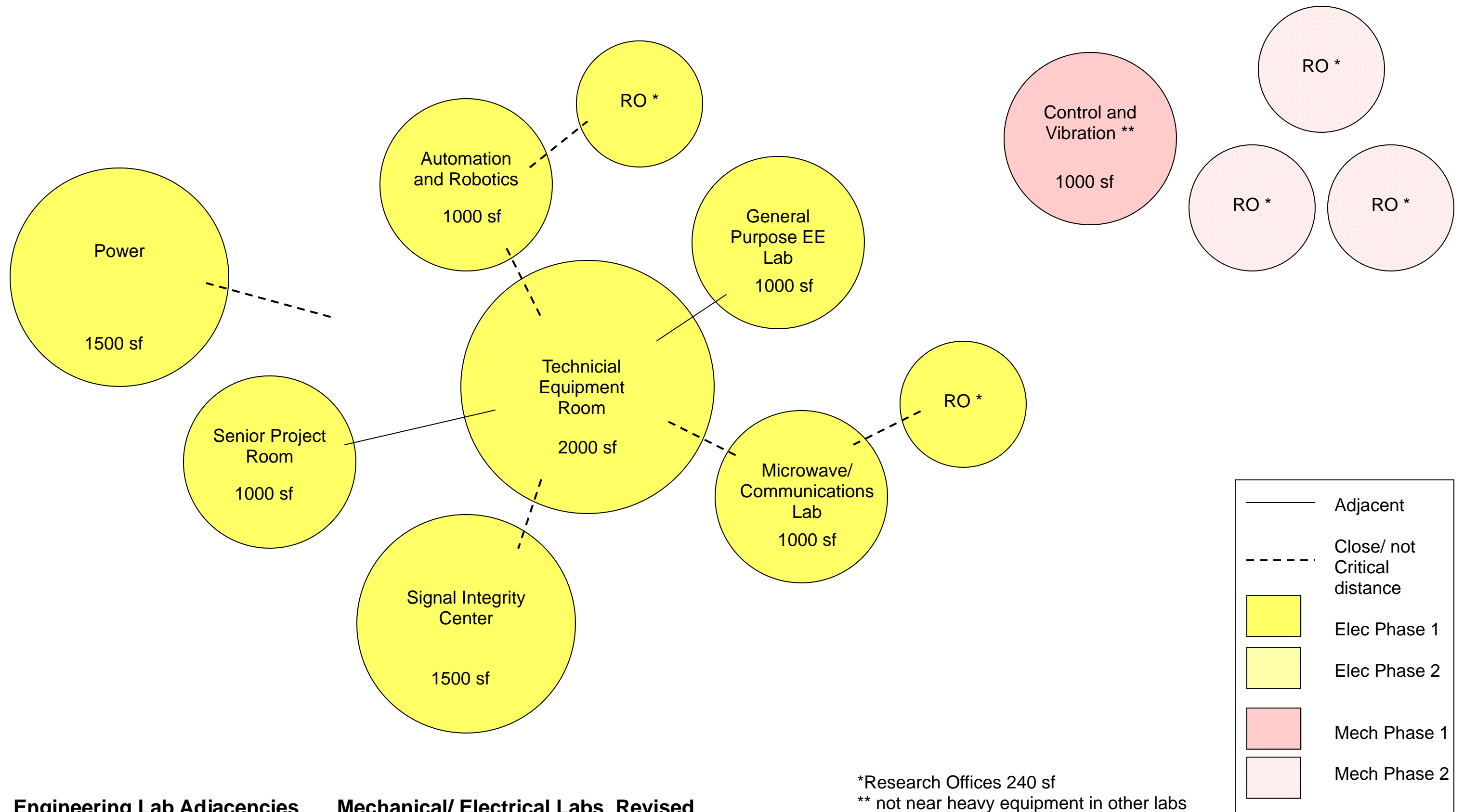
General Purpose EE Lab Square feet: 1000

Desired Relationship to Other Space Adjacencies: EE/EET Equipment room

Microwave/ Communication Lab square feet: 1000

Desired Relationship to Other Space Adjacencies: EE/EET Equipment Room





EAB Study - Space Program  
PSU Harrisburg

2/3/2011 rev 03/18/2011

Space Name	QTY	NSF/EA	NSF	Priority 1		Priority 2		Priority 3		Phase /Floor	Remarks
				number	area	number	area	number	area	in 02/03/11 Plan	
Classrooms											
1 Large Tiered Classrooms - 120 Capacity	3	2400	7,200	1	2,400	2	4,800	0	0	1A/ 2nd	3 seating 120 each 1 rehearsal Science 80 seat 40x40
2 Seminar Room	1	300	300	0	0	1	300	0	0		seaitng capacity 10
3 General Purpose Classroom - Size 50 seat Capacity	2	1000	2,000	1	1,000	1	1,000	0	0	1A/ 2nd	seat 50 w/ lab for 25 each side 50x20= 1000
4 24 seat classroom	1	750	750	1	750					1B/ 2nd	using an existing classroom in EAB
5 CUB spaces	1	12000	12,000	0		0		1	12,000		added during december meeting
Offices											
6 Engineering Faculty offices 10x10	3	100	300	3	300	0	0	0	0	1B/ 2nd	in addition to research lab office space
7 Engineering Administration Suite 1 SA plus support 12x15	2	150	300	2	300	0	0	0	0	1B/ 1st	? SA/ suite, other functions/ spaces: reception, conf, work area,
8 Humanities Support Space/ Office 10x10 spaces	3	100	300	0	0	3	300	0	0		recycling, kitchenette, dirofice, asst- larger offices (NO) adjacent to performing arts tiered classroom
Research Labs/ Office											
9 Research Lab with office/ teaching area 12x20	10	240	2,400	5	1,200	5	1,200	0	0	1B/ 2nd	5 mech/ elec plus 5 civil: Transport / Mat
10 Photo Lab	1	1000	1,000	0	0	1	1,000	0	0		Non destructive testing, Soils, Bridge, Mat Research,
11 Arts Studio (size of existing?)	1	1500	1,500	0	0	1	1,500	0	0		
Civil Engineering Labs											See PSU document Jan 2011
12 Strength of Materials Lab	1	1500	1,500	0	0	1	1,500	0	0		high ceiling 10-12' to be confirmed, large equip,
13 Concrete/ Asphalt Lab	1	1000	1,000	1	1,000	0	0	0	0	1C/ 1st	mixing. Stone, <b>shower</b> room (wet), w/ door double size of existing, garage door required
14 Civil Preparation/ Curing Area	1	500	500	1	500	0	0		0	1C/ 1st	
15 Teaching Lab: Geotechnical Soils	1	1500	1,500	1	1,500	0	0		0	1A/ 2nd	
16 Civil Student Project Lab	1	1000	1,000	0	0	0	0	1	1,000	1B/ 1st	in phase 1 as per 02/03/11 plan
17 Civil Structures Lab	1	1500	1,350	1	1,500	0	0		0	1B/ 1st	requested 1500
18 Civil Structures Research Lab	1	1000	1,000	0	0	0	0	1	1,000		
19 Surveying Lab	1	750	600	1	600	0	0		0	1B/ 1st	requested 750
Mechanical Engineering Labs											
20 replacement for Olmsted W14 Control & Vibration Lab.	1	1000	1,000	1	1,000	0	0		0	1C/ 1st	exist 24x28= 672 sf too small
											not served by ELEC tech person, some equip could be kept in room self contained in this building



EAB Study - Space Program  
PSU Harrisburg

2/3/2011 rev 03/18/2011

Space Name	QTY	NSF/EA	NSF	Priority 1		Priority 2		Priority 3		Phase /Floor	Remarks
				number	area	number	area	number	area	in 02/03/11 Plan	
Electrical Engineering Labs											
21 ELEC replacement for Olmsted W5F Power	1	1500	1,500	1	1,500	0	0		0	1A/ 1st	exist 24x40= 960 sf too small some heavy equip needs to be in room min stor w/ technician (light)
22 ELEC replacement for Olmsted E209 Automation & Robotics	1	1000	1,000	1	1,000	0	0		0	1B/ 2nd	exist 24x40= 960 sf, 11 monitors, 22 chairs
* 23 ELEC Signal Integrity Center	1	1500	1,500	1	1,500	0	0		0	1A/ 1st	
24 ELEC Technician / Equipment Room	1	2000	2,000	1	2,000	0	0		0	1B/ 1st	1 room, with 4 compartments?
25 ELEC Senior Project Room E224	1	1000	1,000	1	1,000	0	0		0	1B/ 1st	
26 ELEC General Purpose EE LabE218	1	1000	1,000	1	1,000	0	0		0	1A/ 1st	do not need storage (tech would keep equip)
* 27 ELEC E243 Microwave/ Communication Lab	1	1000	1,000	1	1,000	0	0		0	1A/ 1st	
* SIGNATURE LABS											
Student Support/ amenity											
28 Computer Lab (current 1000 lab adjacent to 250 support- sup-	2	1000	2,000	1	1,000	1	1,000		0	1B/ 2nd	Similar to Olmsted E206 minus support room
29 Student Lounge/ Study Space "Pocket Lounge" 15x20	2	300	600	2	600	0	0		0	1B/ 1st&2nd	dispersed? Vending machines? Tables/ chairs 1 per floor could be 1 in phase 1
30 Atrium/ Gathering space ? Space req TBD	1	2000	2,000	0	0	1	2,000		0		Priority classification and square footage to be decided
Support											
31 Loading Bay serves concrete and other labs	1	200	200	1	200	0	0		0	1C/ 1st	separate from labs
32 Mechanical Rooms	1	100	100	1	100	0	0		0	1A/ 1st	added into addition after jan 26 mtg
33 Electrical Rooms	1	100	100	1	100	0	0		0	1B/ Bsmt?	
34 Server Rooms Bldg T&S	1	100	100	1	100	0	0		0	1B/ Bsmt?	PSU guidelines: modifications to satndards?
35 AV Closets	1	100	100	1	100	0	0		0	1B/ 2nd	PSU guidelines: modifications to satndards?
36 Janitor Closets	2	50	100	2	100	0	0		0	1B/ 1st & 2nd	1 per floor- old and new?
37 Bathrooms (2 multi stall existing to remain)	4	400	1,600	4	1,600	0	0		0	1B/A 1st & 2nd	code related
38 Elevator (2nd one) and machine room	2	200	400	1	200	1	200		0	1B	code related
Total NSF			53,800		25,150		14,800		14,000		Net Square Footage
Net-to-Gross Factor			1.3		1.3		1.3		1.3		
Total DGSF			69,940		32,695		19,240		18,200		Departmental Gross Square Footage
14000 new + 17000 exist = 31,000 sf Phase 1 goal											

## EXISTING CONDITIONS REPORT

### Study for Renovations and Addition to The Educational Activities Building

The Pennsylvania State University  
Harrisburg Campus, Pennsylvania

*Prepared for*

**Weber Murphy Fox**  
403 South Allen Street, Suite 115  
State College, PA 16801

*Prepared by*



**Century Engineering, Inc.**  
200 Airport Road  
New Cumberland, PA 17070  
(717) 901-7055

January 26, 2011

103062

Study for Renovations and Addition to  
The Educational Activities Building  
The Pennsylvania State University  
Harrisburg Campus

January 26, 2011

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## ATTACHMENTS

- 1 Partial Site Plan

## Systems Analysis

## EAB Addition Renovation Study February-2011

## Study Phase



EXECUTIVE SUMMARY

Century Engineering has been retained by Weber Murphy Fox as the Mechanical/Electrical/Plumbing (MEP) consultant for the Renovations and Addition to the Educational Activities Building (EAB) Study. The first phase of the study is to determine the existing MEP infrastructure for the Electrical Engineering and Vibration Labs in Olmsted and the Concrete Testing Labs in the Science and Technology building. Also included in this first phase, is documentation of the existing MEP infrastructure in the EAB.

The second phase of the study involves analysis of how the proposed renovations and addition affect the existing building MEP systems and the existing underground site utilities. Included in this phase is an estimate of probable construction costs for the renovations and addition.

This report includes the first phase of the study.

EXISTING CONDITIONS

The following existing conditions were observed during site walk throughs of the Olmsted Building, the Science and Technology Building and the Educational Activities Building.

Olmsted Building Electrical Engineering and Vibration Labs

- Room E206
  - Mechanical: Contains a single ceiling cassette mini split system air conditioner
  - Plumbing: None.
  - Electrical: Lighting in the space consists for lensed fluorescent troffers. General power in the space is distributed at 120V to receptacles located on the benchtops and along the perimeter.
- Room E209
  - Mechanical: Contains sidewall supply air off of the corridor system.
  - Plumbing: None.
  - Electrical: Lighting in the space consists for lensed fluorescent troffers. General power in the space is distributed at 120V to receptacles located on the benchtops and along the perimeter. An overhead projector for presentations was observed.
- Room E213
  - Mechanical: Contains 2-pipe fan coil units at the perimeter; ceiling mounted supply air diffusers that appear to be old; supply air off of the corridor system.
  - Plumbing: None.
  - Electrical: Lighting in the space consists of lensed fluorescent troffers. General power in the space is distributed at 120V to receptacles located on the benchtops and along the perimeter. 208V power is provided at select locations.
- Room W14
  - Mechanical: None.
  - Plumbing: None.
  - Electrical: Lighting in the space consists of lensed fluorescent troffers. General power in the space is distributed at 120V to receptacles located on the benchtops and along the perimeter.

Systems Analysis

Study Phase

- Room W5
  - o Mechanical: Contains only ceiling mounted supply air diffusers that appear to be old. User is concerned about providing adequate exhaust ventilation to relieve odors generated by the canvas friction motor brakes.
  - o Plumbing: None.
  - o Electrical: Lighting in the space consists of lensed fluorescent troffers. Special power stations are provided throughout the room that provides 12V DC, 120V AC and 208V-3PH power. In addition, there is a large power transformer station.

#### Science and Technology Building

- Concrete Testing Lab
  - o Mechanical: Contains ceiling mounted unit ventilators ducted to ceiling mounted supply air diffusers; a fume hood enclosure with stored containers of kerosene and gasoline; concrete prep room contains two (2) hot water unit heaters suspended from the ceiling.
  - o Plumbing: Contains three (3) lab table sinks and three (3) end of table sinks; an emergency shower/eye wash; a wet room for concrete curing; concrete prep room contains a utility sink with hose connections and a large floor drain in the center of the room.
  - o Electrical: The testing lab lighting consists of lensed fluorescent troffers. General power in the space is distributed at 120V to receptacles located on the benchtops and along the perimeter. The wet room lighting consists of wet listed vapor tight fluorescent fixtures. The prep room lighting consists of lensed fluorescent troffers. Power is provided to two 7kw electric ovens and one wet saw.

## Systems Analysis

### EAB Addition Renovation Study February-2011

## Study Phase

#### Educational Activities Building

- Mechanical: Two-pipe chilled/heating water central system with manual changeover.

- o Central Heating: Heating is supplied from the campus high pressure/high temperature heating water system delivered via a 2" pipe feed from an exterior concrete vault (MH#4). Refer to partial site plan attached



to this report. The heating water is supplied at approximately 230°F - 240°F to a single shell/tube heat exchanger (approx. 7'-0" long x 10"-dia.) which converts a closed loop low pressure heating water system for building circulation. The building heating water is circulated by a single 1.5 HP end suction pump with a 3" discharge. It is unlikely that this service is of appropriate size and capacity to handle the entire building renovation including the addition.

- o Central Cooling: Cooling is supplied from a single 60-Ton (nom.) reciprocating chiller (Carrier, 30HK-060) that appears to be in good operating condition, but is likely to be beyond its recommended service life. It uses R-22 refrigerant which is currently in its phase out period which makes continued future maintenance a concern. The building chilled water is circulated by a single end suction pump (2x2-1/2x7, 150 GPM, 42 ft. TDH). The condenser water side of this system includes a Marley cross flow cooling tower and a single end suction pump identical to the chilled water circulator. The cooling tower appears to have significant





high is to be expected for its age. It is unlikely that this service is of appropriate size and capacity to handle the entire building renovation including the addition.

- o Automatic Temperature Control (ATC): A small pneumatically operated control system (Johnson Controls) with air compressor is installed and appears to be in good working condition. However, this type of system is very outdated and not recommended for expansion to accommodate the building renovation and addition.



- o Building HVAC Units: Two-pipe unit ventilator fan coil units (Trane, Unitrane) with three-speed fan operation are located along the perimeter of the building. These units are responsible for all building comfort heating and cooling and are subject to the manually controlled seasonal changeover. A fresh air intake louver (16x5) is provided at the exterior wall behind each unit for the provision of outdoor ventilation air. It is unlikely that the quantity of fresh air is enough for the present use of the building, but certainly would not be adequate for the renovation.



- o Toilet Room Exhaust: Each space has a single dedicated ceiling exhaust fan (Broan) ducted to the exterior through a wall louver.
- o Utility Room Exhaust: The main mechanical room has a 16"-dia., ¼ HP panel wall fan that appears to be in good working order. The IT Closet on the second floor did not have any exhaust or supplied conditioned air.

- Plumbing: The existing domestic water service enters through the main mechanical equipment room at approximately 1-1/2"-dia. A single electric water heater is in service (A.O. Smith, EES-80) which has two 4500 kW heating elements and 80 gal. storage capacity. It is unlikely that this service is of appropriate size and capacity to handle the entire building renovation including the addition. The building does not currently have fire sprinkler coverage which will be required for the renovation and addition. Water service will have to be sized appropriately to accommodate this requirement.



## Systems Analysis

### EAB Addition Renovation Study February-2011

## Study Phase



- Electrical:

- Electrical Service: The existing electrical service to the building originates in a manhole on the east side of College Avenue. Refer to partial site plan attached to this report. From this manhole, 12.47 KV cabling is routed under College Avenue to a pad mounted 300KVA transformer on the north side of the EAB. The 300KVA transformer is located within a fenced area approximately at the midpoint of the building. 120/208-3PH-4W service is provided from this transformer underground and into the basement mechanical/electrical room. The service terminates in an 800A Square D Type HCM distribution panelboard. Maximum demand on this service is 91KVA per the Square D Power Logic power monitoring meter. This equates to approximately 252 amps. Therefore the existing service panelboard is 30% loaded.
- Lighting: Lighting in the building mainly consists of recessed, 2 and 4 lamped T8 lensed fluorescent troffers. Some open office areas were lit with 4 lamp T8 parabolic eggcrate fluorescent troffers. Classrooms included dimmable recessed Par 30 halogen downlights. Lighting is controlled by local toggle switches and occupancy sensors. Emergency lighting in the building is provided by wall mounted emergency battery packs. There are two types of exit signage in the building; power and non-powered (plaque type).
- Power: General power is distributed from the distribution panelboard to various branch circuit panelboards located on the first and second floors. From these panelboards, space lighting and receptacle loads are served. The existing branch circuit panelboards are Siemens ITE load centers.
- Fire Alarm: The fire alarm system in the building consists of pull stations and audible/visual annunciators. In addition, smoke detectors are located in the first and second floor corridors. Heat detectors are utilized in the basement mechanical room. The main fire alarm control panel could not be located at the time of the walkthroughs.
- Security: The existing security system for the building consists of an access keypad in the vestibule on the parking lot side of the building and motion sensors located at exterior doors.



- Telephone/Data: Fiber optic cabling and voice trunk cabling originates on the east side of College Avenue, is routed underground, under the building and enters the mechanical room on the east side. From here, fiber is routed to the second floor data closet. Data jacks from the building are routed to this data closet.

## Systems Analysis

### EAB Addition Renovation Study February-2011

## Study Phase

## **ANALYSIS AND RECOMMENDATIONS**

The following analyzes the existing building MEP systems as they relate to age, condition, maintainability and recommends reuse or replacement.

### Educational Activities Building

- Mechanical: It is unlikely that the mechanical services are of appropriate size and capacity to handle the entire building renovation including the addition. Existing equipment appears to be in generally good working order, but is most likely beyond its recommended service life. Provisions will be required in the renovated building as well as the addition for the delivery of adequate fresh ventilation air in order to comply with applicable building code.
- Plumbing: It is unlikely that the plumbing services are of appropriate size and capacity to handle the entire building renovation including the addition. Consideration will be required for providing adequate services to accommodate fire protection sprinkler coverage for the building including the addition.
- Electrical:
  - o Electrical Service: The existing underground service and main building transformer are in good condition. Reuse of this equipment may be feasible depending on the new building program requirements, placement of any additions and equipment voltage requirements. The existing main distribution panelboard is in good condition. This panelboard is still manufactured and as such circuit breakers are readily available. Reuse of this panelboard may be feasible, however size will need to be verified.
  - o Lighting: The existing lighting is in good condition, however the type of lighting (primarily lensed troffers) is not typical for classroom and office spaces. The lamps and ballasts utilized in the existing fixtures are current and readily available. Recommend full replacement of lighting to meet current energy code requirements and the new program for the building. The lighting controls will need to be upgraded to meet current code requirements. Emergency battery packs appeared to be in fair condition. If a generator is not provided for emergency lighting, new emergency battery packs will need to be provided to meet current building code requirements for egress lighting.

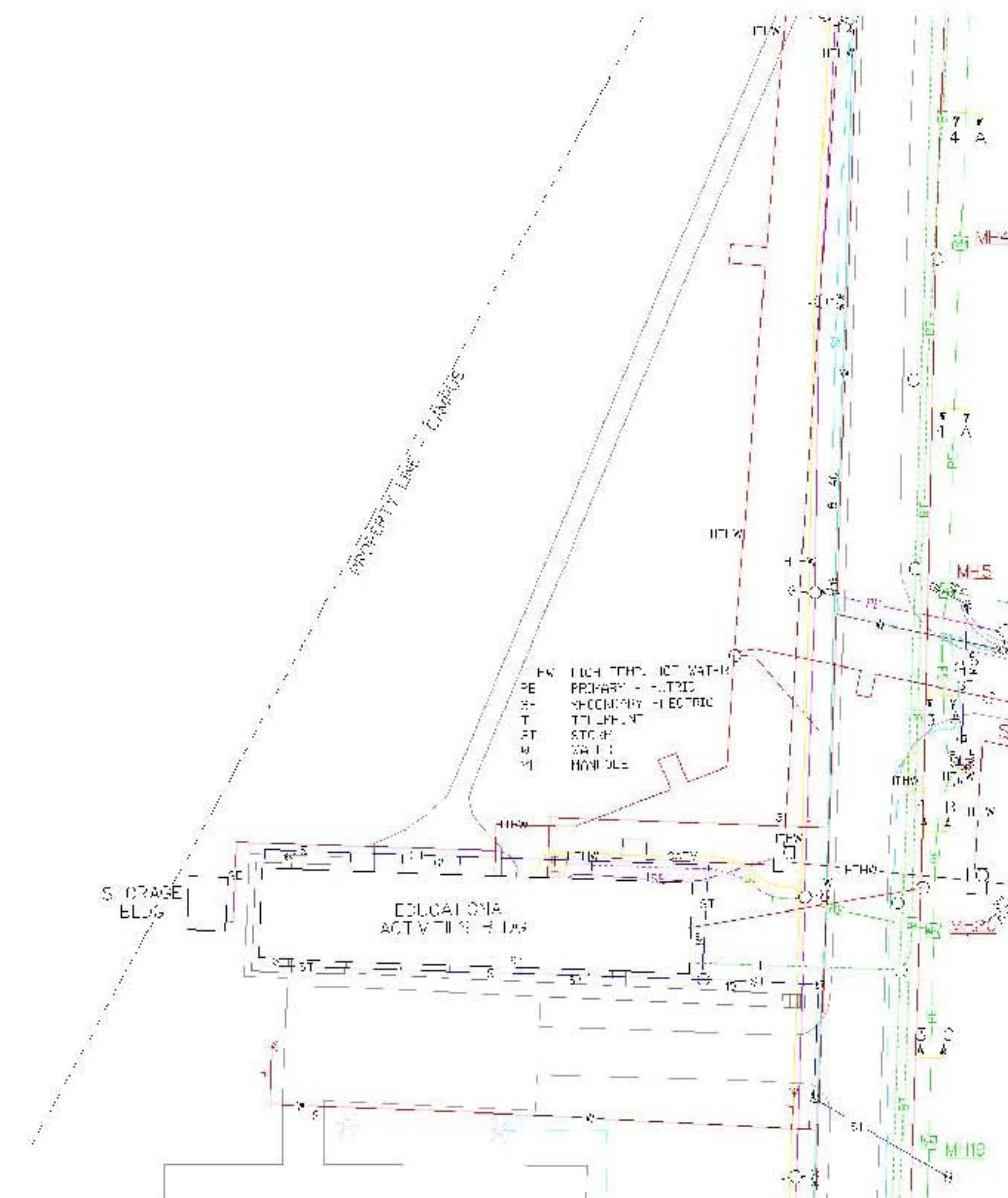
- o Power: The existing branch circuit panelboards are in good condition. These panelboards are still manufactured and as such circuit breakers are readily available. Reuse of this equipment may be feasible depending on the new program requirements.
- o Fire Alarm: The fire alarm system is in fair condition; however it is toward the end of its useful life. Recommend that the system be replaced with a new addressable system that meets current code requirements.
- o Security: The security system is in fair condition, however it is toward the end of its useful life. Recommend that the system be replaced.
- o Telephone/Data: The existing incoming fiber optic service is in excellent condition and should be adequate for the new building program requirements. The existing data/voice cabling will need to be replaced to meet the new building program requirements.

## **Systems Analysis**

### **EAB Addition Renovation Study February-2011**

## **Study Phase**

ATTACHMENTS  
1 – Partial Site Plan



PARTIAL SITE PLAN

Systems Analysis

EAB Addition Renovation Study February-2011

Study Phase



EAB Program Space By Space  
CIVIL/ MECHANICAL AND ELECTRICAL ENGINEERING LABS

Space Title: CIVIL: Concrete/Asphalt Lab

General Information

Quantity: 1

Square feet: 1500 SF

Space Function and Purpose:

The space is to conduct concrete and asphalt laboratory exercises as well as lectures, class instructions, and student test. The space will also provide laboratory storage and accessibility for tools, measuring apparatuses, and equipment.

Number of Occupants: 24

Desired Relationship to Other Space Adjacencies:

The Concrete/Asphalt Teaching Lab needs to be adjacent to the “CONCRETE CURING” and “PREPARARTION” rooms. The “Curing” room is a controlled room with water spraying system, humidity control, waterproof lighting and a drainage system. The “Preparation” room will include a portable concrete mixer, raw material storage (stone, sand, etc.) concrete bins, an oven, slivers that supports the lab.

Space Needs:

General Comments:  
(Space layout similar to existing concrete teaching lab in TL)

Lighting Requirements:  
1) Teaching & Laboratory Lighting to conduct exercises and lectures  
2 ) Control and dimmer control lighting for overhead presentations

Electrical Power Requirements:  
Electrical Outlets every 12 feet around outside perimeter three walls and 48” from floor for equipment electrical power sources.  
Electrical outlets at lab stations, 4 outlet stations housing two duplexes (four plugs) on top of each room of laboratory stations, small testing machine, and computers network.  
4- 240 V outlets for specific equipment (location position- TBA)  
Electrical service for asphalt ventilation hood  
Electrical outlet for instructor station, overhead projector, and interactive wall board  
Electrical service outlet for wall mounted Monitor/TV at front of room

Electronics / Communications Requirements:  
Internet access- for computers ( instructor station and three other stations)  
Overhead computer projector connected to instructor computer station  
Telephone line near front of room.

Finishes:  
Sealed concrete floor or vinyl flooring. Walls to be maintained

Plumbing Requirements:  
4- Slop sink with silt traps. One sink (3 total) at end of each laboratory station row. 1 sink - Located near rear entrance. Water fixtures (hot and cold) at each sink.  
Eye wash station system  
Plumbing for asphalt station.

HVAC Requirements:  
Ventilation hood system for asphalt fumes.  
2) Controlled HVAC for laboratory/ classroom use  
3) Exhaust system for asphalt laboratory station  
4) Ventilation system to remove excessive particles from class/ lab air.

Special Systems:  
1) Automatic fire suppression system for asphalt lab work station  
2) Sprinkler and smoke alarm systems  
3) Eye Wash Station  
4) Window treatment for climate control

Special Space and Built-in Items:  
1) Asphalt working laboratory with enclosed class, exhaust system, automatic fire suppression with necessary utilities hook ups

Furniture:  
1) 3 - Working lab stations 5’ wide X 14’ long. (10 closed cabinets – 3’ W X 30” D X 3’. 5 cabinets on each side back to back. Working Surface is granite, slate or similar material for type of lab usage. Individual cabinet has 4 -18” key lock drawers one side and drawer with closed door key locked storage unit.  
2) Same 3’ closed cabinets around one side of lab wall and back wall.  
3) 4- 4’ W X2’ D X 7’ cabinets on one side of room for storage.

NOTE: Laboratory cabinets with storage drawers and working top. (Similar layout to present TL 112) concrete/soils lab)

Equipment: White board

Engineering Lab Space Program

Study Phase

**Space Title: CIVIL: Preparation/ Curing Area.**

General Information

Quantity: 1

Square feet: 1000 SF

Space Function and Purpose:

This space is for concrete preparation including 3 raw material storage bins (stone, sand, other material); large material scale; portable concrete mixer, 10 cement bags bins; filter sleeves storage; 2 ovens, shaker vibrator, storage cabinets to support the lab.  
The space is to prepare materials and conduct exercises that require material and mixing instruments.

Number of Occupants: 24

Desired Relationship to Other Space Adjacencies:

PREPARATION room will require being adjacent to Concrete/Asphalt Teaching Lab. The Teaching laboratory is an integral part of the preparation area.

Space Needs:

- 1) PREPARATION room will require an overhead garage door to have access to an outside working area. This space provides concrete mixing.
- 2) Hard Surface (Bituminous or concrete) outside preparation overhead door for students to conduct outdoor exercises.

Lighting Requirements:  
General Lighting to conduct exercises and measurements.

- Electrical Power Requirements:
- 1) 240 V for 2 ovens, scale, and 2 vibrator machines.
  - 2) Exterior electrical outlets for portable concrete mixer.
  - 3) Electrical outlet for table and portable equipment.
  - 4) Electrical – Overhead door

Electronics / Communications Requirements:  
N/A

Finishes:  
Concrete Floor

- Plumbing Requirements:
- 1- large slop drain with silt trap.
  - Concrete curing spray system, Water fixtures (hot and cold)
  - Outside water hook up.
  - Sprinkler system (Curing room)

HVAC Requirements:  
1) Controlled HVAC for laboratory/ classroom use

Special Systems:

Special Space and Built-in Items:  
1) Outside area to mix concrete samples with overhead door for preparation space room.

2) “CONCRETE CURING ROOM” – 6’ X14’ for curing concrete samples. This is humidity and temperature controlled curing room with water spraying system as well as drainage, waterproof lighting, fireproofing.  
Finish- Walls – ceramic tile, concrete floor, 10 drainage floor system

3) - Material storage – storage of raw material- stone, sand and another general storage bin area.

4) - a big dump bin for broken concrete samples.

Furniture:

- 1) 3- 3’W x 2 D X 7 H. Enclosed cabinet for storage.
- 2) 2- 3’ height 8’ long base metal cabinets for oven, vibrator and other instruments. Cabinet to have storage space with doors and heavy duty working surface top.
- 3) Storage cabinet shelves

Equipment:

Engineering Lab Space Program

Space Title: CIVIL Teaching Lab - Geotechnical (Soils)

Quantity: 1

Square feet: 1500

Space Function and Purpose:  
The space is to conduct geotechnical exercises as well as lectures, class instructions, and student test. The space will also provide laboratory storage and accessibility for tools, measuring apparatuses, and equipment.

Number of Occupants: 24

Desired Relationship to Other Space Adjacencies:  
Research Lab Room - Geotechnical (Soils)

Space Needs

General Comments:

Lighting Requirements:  
1) Teaching & Laboratory Lighting to conduct exercises and lectures  
2 ) Control and dimmer control lighting for overhead presentations

Electrical Power Requirements:  
1) Electrical Outlets every 12 feet around outside perimeter three walls and 48” from floor for equipment electrical power sources.  
2) Electrical outlets at lab stations, 4 outlet stations housing two duplexes (four plugs) on top of each room of laboratory stations. small testing machine, and computers network.  
3) 4- 240 V outlets for specific equipment (location position- TBA)  
4) Electrical outlet for instructor station, overhead projector, and interactive wall board  
5) Electrical service outlet for wall mounted Monitor/TV at front of room

Electronics / Communications Requirements:  
1) Internet access- for computers ( instructor station and three other stations)  
2) Overhead computer projector connected to instructor computer station  
3) Telephone line near front of room.  
4) Computer access lines every 12 feet on outside perimeter walls

Finishes:  
1) Sealed concrete floor or vinyl flooring. Walls to be maintained

Plumbing Requirements: Ordinary and deionized water, drains with silt traps, compressed air

HVAC Requirements: Standard

Special Space and Built-in Items: White board

Furniture: Table and chairs to seat twenty four students, instructor station

Equipment: Geotechnical testing equipment

Space Title: Strength of Materials Lab

General Information

Quantity: 1

Square feet: 1500 SF

Space Function and Purpose:

The space is to conduct strength of materials laboratory exercises as well as lectures and class instructions. The space will also provide laboratory storage and accessibility for tools, measuring apparatuses, and equipment.

Number of Occupants: 20

Desired Relationship to Other Space Adjacencies:

The Strength of Materials laboratory needs to be near the “CONCRETE CURING” room with concrete samples. Also needed, a separate control room to house a testing furnace for treating material samples for specific lab exercises.

Space Needs

General Comments:

Lighting Requirements:  
1) Teaching & Laboratory Lighting to conduct exercises and lectures  
2 ) Control and dimmer control lighting for overhead presentations

Electrical Power Requirements:  
1) Electrical Outlets every 12 feet around outside perimeter three walls and 48” from floor for equipment electrical power sources.  
2) Electrical outlets at lab stations on top of laboratory stations for small testing machine, and computers network.  
3) 240 V outlets for specific equipment (location position- TBA)  
4) Electrical outlet for instructor station and overhead projector.

Electronics / Communications Requirements:  
1) Internet access- for computers ( instructor station and at stations)  
2) Overhead computer projector connected to instructor computer station  
3) Telephone line near front of room.

Finishes:  
Sealed concrete floor. Walls to be maintained

Plumbing Requirements:  
Water, eye protection station, compressed air, Water fixtures (hot and cold) for a slope sink. GAS for furance??

Cont’d

Engineering Lab Space Program

Study Phase



Space Title:   **Strength of Materials Lab** continued

HVAC Requirements:

- 1)Ventilation hood system for furnace fumes.
- 2) Controlled HVAC for laboratory/ classroom use
- 3) Ventilation system to remove excessive particles from class/ lab air.

Special Systems:           Eye wash protection station

Special Space and Built-in Items:           White board

A separate control room to house a testing furnace for treating material samples for specific lab exercises. This area needs to have an exhaust system to discharge harmful gases and other air particles.

Furniture:

- 1) 2 - Working lab stations 5' wide X 10' long. (Each station has 3 closed cabinets – 3' W X 30" D X 3'H. 5 units on each side back to back.
- 2) 4- 4' W X2'D X 7'H cabinets on one side of room for storage.

Equipment:                   Strength of Material testing equipment

Space Title:   **CIVIL: Student Project Lab**

General Information

Quantity: 1

Square feet: 1000

Space Function and Purpose: This pace will be used for student projects as well as competition such as ASCE canoe, steel erection, and others.

Number of Occupants: 12- 24

Desired Relationship to Other Space Adjacencies:

Space Needs

General Comments:                   Serves the interest of civil engineering students

Lighting Requirements:

- 1) Lighting to conduct exercises and projects
- 2 ) Control and dimmer control lighting for overhead presentations

Electrical Power Requirements:

- 1) Electrical Outlets every 12 feet around outside perimeter three walls and 48" from floor for equipment electrical power sources.
- 2) Electrical outlets at lab station on top of laboratory stations for small testing machine, and computers network.
- 3) 240 V outlets for specific equipment (location position- TBA)
- 4) Electrical outlet for instructor station and overhead projector.

Electronics / Communications Requirements:

- 1) Internet access- for computers (instructor station and at stations)
- 2) Overhead computer projector connected to instructor computer station
- 3) Telephone line near front of room.

Finishes:                               Standard, concrete floor

Plumbing Requirements:

- 1)- large slop drain with silt trap.
- 2) Concrete curing spray system, Water fixtures (hot and cold)
- 3) Outside water hook up.
- 4) Sprinkler system (Curing room)

HVAC Requirements:

- 1) Controlled HVAC for laboratory/ classroom us

Special Systems:

Special Space and Built-in Items:           White board

Furniture:

- 1) Table and chairs to seat twenty four students, instructor station
- 2) Working lab stations 5' wide X 10' long. (Station has 3 closed cabinets – 3' W X 30" D X 3'H. 5 units on each side back to back.
- 2) 4- 4' W X2'D X 7'H cabinets on one side of room for storage

Engineering Lab Space Program

EAB Addition Renovation Study December -2010

Study Phase

WMF

WEBER MURPHY FOX  
ARCHITECTURE INTERIORS CONSTRUCTION

ERIE CLEVELAND STATE COLLEGE PITTSBURGH

**Space Title: CIVIL: Structures Lab**

General Information

Quantity: 1

Square feet: 1,500 SF

Space Function and Purpose:

Large size reinforced concrete and steel structural elements under static, dynamic and fatigue loads can be tested in the Structures Lab. The lab allows research in the field of structural engineering to be performed by faculty, staff, undergraduate and graduate students.

Number of Occupants: 24

Desired Relationship to Other Space Adjacencies:

An overhead garage door with access to outside working area.  
Hard surface (bituminous or concrete) outside overhead door for students to conduct outdoor exercises.  
To be adjacent to Preparation/curing area.

Space Needs

General Comments:

Lighting Requirements:

- 1) Lighting to conduct exercises and projects
- 2 ) Control and dimmer control lighting for overhead presentations

Electrical Power Requirements:

- 1) Electrical Outlets every 12 feet around outside perimeter three walls and 48” from floor for equipment electrical power sources.
- 2) Electrical outlets at lab station on top of laboratory stations for small testing machine, and computers network.
- 3) 240 V outlets for specific equipment (location position- TBA)
- 4) Electrical outlet for instructor station and overhead projector.

Electronics / Communications Requirements:

- 1) Internet access- for computers (instructor station and at stations)
- 2) Overhead computer projector connected to instructor computer station
- 3) Telephone line near front of room.

Finishes: Concrete floor structurally designed to hold large loads

Plumbing Requirements:

- 1)- large slop drain with silt trap.
- 2) Water fixtures (hot and cold)
- 3) Outside water hook up.

HVAC Requirements:

- 1) Controlled HVAC for laboratory/ classroom us

Special Systems:

Special Space and Built-in Items: White board

Furniture:

- 1) Table and chairs to seat twenty four students, instructor station
- 2) Working lab stations 5’ wide X 10’ long. (Station has 3 closed cabinets – 3’ W X 30” D X 3’H. 5 units on each side back to back.
- 3) 4- 4’ W X2’D X 7’H cabinets on one side of room for storage

Equipment: Overhead Crane to lift large loads for moving.

**Engineering Lab Space Program**

**EAB Addition Renovation Study December -2010**

**Study Phase**

**WMF**

WEBER MURPHY FOX  
ARCHITECTURE INTERIORS CONSTRUCTION

ERIE CLEVELAND STATE COLLEGE PITTSBURGH

**Space Title: CIVIL: Structures/Research Lab**

General Information

Quantity: 1

Square feet: 1000

Space Function and Purpose: Conduct Structural Elements Exercises

Number of Occupants:

Desired Relationship to Other Space Adjacencies:

- 1) An overhead garage door with access to an outside working area.
- 2) Hard Surface (Bituminous or concrete) outside overhead door for students to conduct outdoor exercises.

Space Needs

General Comments: Serves the interest of civil engineering students

Lighting Requirements:

- 1) Lighting to conduct exercises and projects
- 2 ) Control and dimmer control lighting for overhead presentations

Electrical Power Requirements:

- 1) Electrical Outlets every 12 feet around outside perimeter three walls and 48” from floor for equipment electrical power sources.
- 2) Electrical outlets at lab station on top of laboratory stations for small testing machine, and computers network.
- 3) 240 V outlets for specific equipment (location position- TBA)
- 4) Electrical outlet for instructor station and overhead projector.

Electronics / Communications Requirements:

- 1) Internet access- for computers (instructor station and at stations)
- 2) Overhead computer projector connected to instructor computer station
- 3) Telephone line near front of room.

Finishes: Concrete floor structurally designed to hold large loads

Plumbing Requirements:

- 1)- large slop drain with silt trap.
- 2) Water fixtures (hot and cold)
- 3) Outside water hook up.

HVAC Requirements:

- 1) Controlled HVAC for laboratory/ classroom us

Special Systems:

Special Space and Built-in Items:

- 1) Overhead Crane to extend to outside 20 foot ceiling
- 2) White board

Furniture:

- 1) Table and chairs to seat twenty four students, instructor station
- 2) Working lab stations 5’ wide X 10’ long. (Station has 3 closed cabinets – 3’ W X 30” D X 3’H. 5 units on each side back to back.
- 3) 4- 4’ W X2’D X 7’H cabinets on one side of room for storage

Equipment:

Overhead Crane to extend to outside 20 foot ceiling

**Engineering Lab Space Program**

**EAB Addition Renovation Study December -2010**

**Study Phase**

**WMF**

WEBER MURPHY FOX  
ARCHITECTURE INTERIORS CONSTRUCTION

ERIE CLEVELAND STATE COLLEGE PITTSBURGH



Space Title: CIVIL Surveying Lab

Quantity: 1

Square feet: 750

Space Function and Purpose:  
Surveying lab is to store surveying equipment and exhibit for demonstrations.

Number of Occupants: 24

Desired Relationship to Other Space Adjacencies: Outside door

Space Needs

General Comments:

Lighting Requirements:  
1) Lighting to conduct exercises and projects  
2 ) Control and dimmer control lighting for overhead presentations

Electrical Power Requirements:  
1) Electrical Outlets every 12 feet around outside perimeter three walls and 48” from floor for equipment electrical power sources.  
2) 240 V outlets for specific equipment (location position- TBA)  
3) Electrical outlet for instructor station and overhead projector.

Electronics / Communications Requirements:  
1) Internet access- for computers (instructor station and at stations)  
2) Overhead computer projector connected to instructor computer station  
3) Telephone line near front of room.

Finishes: Standard

Plumbing Requirements:

HVAC Requirements: Standard

Special Systems:

Special Space and Built-in Items:

Furniture:

Equipment:

EAB C E Research Labs

Space Title: CIVIL Nondestructive Testing of Infrastructures Lab with office/ teaching area 12x20

General Information

Quantity: 1

Square feet: 240

Space Function and Purpose:  
To perform small scale laboratory testing of civil structures using nondestructive testing methods and to evaluate the test data.

Number of Occupants: 3-5

Desired Relationship to Other Space Adjacencies:  
Adjacent to Structures Lab as well as preparation/curing area.

Space Needs

General Comments:

Lighting Requirements:

(1) Standard lighting for regular use.  
(2) Dimmer control for overhead presentations

Electrical Power Requirements: Both 110 volt and 220 volt

Electronics / Communications Requirements:  
Internet access for computers  
Telephone line near front of room.  
Electronics / Communications Requirements: Telephone and computer network

Finishes: Easy to maintain

Plumbing Requirements: water (hot and cold), sink, drains with silt traps, compressed air

HVAC Requirements: Laboratory standard

Special Systems:

Special Space and Built-in Items: White board

Furniture: small desk; 5-foot by 5-foot working lab station; cabinet to store NDT testing equipment.

Equipment: White board

Engineering Lab Space Program

Study Phase

Space Title: CIVIL Geotechnical (Soils) Lab with office/ teaching area

General Information

Quantity: 1

Square feet: 240 (12'x20')

Space Function and Purpose:  
This space will be used for conducting geotechnical engineering research. Civil Engineering graduate students will use this lab for conducting experimental studies. Advanced geotechnical equipment that is small enough to accommodate on bench space of this lab will be procured with funding from federal, state, and private agencies. Dr. Kaku-turu will fulfill the responsibility of developing this lab, by submitting competitive proposals to funding agencies and encouraging students to obtain fellowships.

Number of Occupants: 6

Desired Relationship to Other Space Adjacencies:  
Geotechnical (Soils) Lab. Some facilities of the teaching lab will supplement this lab.

Space Needs

General Comments:  
Lab bench space - 4 ft. wide x 24 ft. long; this can be either along the walls and as islands. (closed cabinets: 4'W x 4'D, below bench space). At least 3 sinks between bench spaces provided with water supply, drain/silt trap, compressed air, and deionized air. Wall cabinets – at least 3: 4'L x 4'W x 2'D, above bench space

Lighting Requirements: (1) Standard lighting for regular use.  
(2) Dimmer control for overhead presentations

Electrical Power Requirements: Both 110 volt and 220 volt

Electronics / Communications Requirements:  
1) Internet access for computers  
2) Telephone line near front of room.

Finishes: Easy to maintain

Plumbing Requirements: Ordinary and deionized water, drains with silt traps, compressed air

HVAC Requirements: Laboratory standard

Special Systems:

Special Space and Built-in Items: White board

Furniture: Table and chairs to seat six people

Equipment: Geotechnical Research equipment

Space Title: CIVIL Bridge Research Lab. with an Office (12'x20')

General Information

Quantity: 1

Square feet: 240

Space Function and Purpose:  
To conduct condition-based research as related to bridge structures utilizing inspection, monitoring, and data acquisition devices

Number of Occupants: 4

Desired Relationship to Other Space Adjacencies:  
Near the Structure Lab.

Space Needs

General Comments:

Lighting Requirements:  
(1) Standard lighting for regular use.  
(2) Dimmer control for overhead presentations

Electrical Power Requirements: Both 110 volt and 220 volt

Electronics / Communications Requirements:  
1) Internet access for computers  
2) Telephone line near front of room.

Finishes: Easy to maintain

Plumbing Requirements: water (hot and cold), sink, drains with silt traps, compressed air

HVAC Requirements: Laboratory standard

Special Systems:

Special Space and Built-in Items: White board

Furniture: standard office desk; A 4'x4' working lab station; A cabinet to store bridge inspection, monitoring, and data acquisition devices.

Equipment: White board

Engineering Lab Space Program

Study Phase

**Space Title: CIVIL Materials Research Lab with office/ teaching area 12x20**

General Information

Quantity: 1

Square feet: 240

Space Function and Purpose:  
Limited access lab for keeping sensitive equipment as well as performing research on materials used in construction, office space for research personnel.

Number of Occupants: 3-5

Desired Relationship to Other Space Adjacencies:  
Adjacent to Materials and Structures Lab.

Space Needs

General Comments:

Lighting Requirements:  
(1) Standard lighting for regular use.  
(2) Dimmer control for overhead presentations

Electrical Power Requirements: Both 110 volt and 220 volt

Electronics / Communications Requirements:  
1) Internet access for computers  
2) Telephone line near front of room.

Finishes: Easy to maintain

Plumbing Requirements: water (hot and cold), sink, drains with silt traps, compressed air

HVAC Requirements: Laboratory standard

Special Systems:

Special Space and Built-in Items: White board

Furniture: standard office desk; A 4'x4' working lab station; A cabinet to store bridge inspection, monitoring, and data acquisition devices.

Equipment: White board

**Space Title: CIVIL Transportation/Materials Research Lab with office/ teaching area 12x20**

General Information

Quantity: 1

Square feet: 240

Space Function and Purpose:  
To perform testing and research in the areas of transportation engineering, including pavements, construction, quality assurance, and materials.

Number of Occupants: 3-5

Desired Relationship to Other Space Adjacencies:  
Adjacent to Concrete/Asphalt Materials Lab as well as preparation/curing area

Space Needs

General Comments:

Lighting Requirements:  
(1) Standard lighting for regular use.  
(2) Dimmer control for overhead presentations

Electrical Power Requirements: Both 110 volt and 220 volt

Electronics / Communications Requirements:  
1) Internet access for computers  
2) Telephone line near front of room.

Finishes: Easy to maintain

Plumbing Requirements: water (hot and cold), sink, drains with silt traps, compressed air

HVAC Requirements: Laboratory standard

Special Systems:

Special Space and Built-in Items: White board

Furniture: standard office desk; A 4'x4' working lab station; A cabinet to store bridge inspection, monitoring, and data acquisition devices.

Engineering Lab Space Program

Study Phase



**Space Title: CIVIL Strength of Materials Lab**

General Information

Quantity: 1

Square feet: 1500 SF

Space Function and Purpose:

The space is to conduct strength of materials laboratory exercises as well as lectures, and class instructions. The space will also provide laboratory storage and accessibility for tools, measuring apparatuses, and equipment.

Number of Occupants: 20

Desired Relationship to Other Space Adjacencies:

The Strength of Materials laboratory needs to be near the “CONCRETE CURING” room with concrete samples. A separate control room is needed to house a testing furnace for treating material samples for specific lab exercises. The natural gas furnace will need to be located along an outside wall.

Space Needs

General Comments:

Lighting Requirements:

- 1) Teaching & Laboratory Lighting to conduct exercises and lectures
- 2) Control and dimmer control lighting for overhead presentations

Electrical Power Requirements:

- Electrical Outlets every 12 feet around outside perimeter three walls and 48” from floor for equipment electrical power sources.
- Electrical outlets at lab stations on top of laboratory stations for small testing machine, and computers network.
- 240 V outlets for specific equipment including tension tester and gas furnace (location position- TBA)
- Electrical outlet for instructor station and overhead projector.

Electronics / Communications Requirements:

- Internet access- for computers ( instructor station and at stations including tension tester station)
- Overhead computer projector connected to instructor computer station
- Telephone line near front of room.

Finishes: Standard walls, Concrete sealed floor, high ceiling (10’ minimum) for tension tester

Plumbing Requirements: water, eye protection station, compressed air for Brinell tester and other equipment, water fixtures (hot and cold) for a slope sink, natural gas line for Sunbeam furnace

HVAC Requirements:

- Ventilation hood system for furnace fumes.
- 2) Controlled HVAC for laboratory/ classroom use
- 3) Ventilation system to remove excessive particles from class/ lab air.

Special Systems: Eye wash protection station

Special Space and Built-in Items: White board

A separate control room to house a testing furnace for treating material samples for specific lab exercises. This area needs to have an exhaust system to discharge harmful gases and other air particles.

Furniture:

- 2 - Working lab stations 5’ wide X 10’ long. (Each station has 3 closed cabinets – 3’ W X 30” D X 3’H. 5 units on each side back to back.
- 4- 4’ W X2’D X 7’H cabinets on one side of room for storage.
- 3 cabinets for specimen storage
- 4 - 4’ x 8’ workbenches
- 2 – 3’ x 4’ high workbenches for tension tester

Equipment:

- 5 – Rockwell-type hardness testers
- Brinnell hardness tester
- Tinius Olsen Charpy impact tester
- Sunbeam natural gas furnace
- Tinius Olsen tension tester
- Compression tester

**Engineering Lab Space Program**

**EAB Addition Renovation Study December -2010**

**Study Phase**

**WMF**

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ERIE CLEVELAND STATE COLLEGE PITTSBURGH

Space Title: MECHANICAL: Control & Vibration Lab

General Information

Quantity: 1

Square feet: 1000 ft<sup>2</sup>

Space Function and Purpose:

This lab is used for the required course MET 454 and elective courses including MET 441 and M E 370. The space needs to accommodate various vibration and control pieces of equipment and supporting devices including computer workstations.

Number of Occupants: 18-24

Desired Relationship to Other Space Adjacencies:

This lab should be located away from any other with heavy equipment that would cause background vibrations.

Space Needs

General Comments:

Lighting Requirements:

- Lighting at desk/workbench height for exercises, lectures, and student work
- Control and dimmer control lighting for overhead presentations

Electrical Power Requirements:

- Electrical Outlets every 10-12 feet around outside perimeter three walls and 48” from floor for equipment electrical power sources.
- Electrical outlets at computer workstations and testing equipment
- Electrical outlet for instructor station and overhead projector.

Electronics / Communications Requirements:

- Network for all computers, workstations and instructor station
- Overhead computer projector connected to instructor computer station
- Telephone line near front of room.

Finishes: Standard walls, Concrete sealed floor

Plumbing Requirements: Compressed air for control trainer

HVAC Requirements:

- Controlled HVAC for laboratory/classroom use

Special Systems:

- None

Special Systems:

- None

Special Space and Built-in Items:

- 10-12’ white board

Furniture:

- Tables and seating for 18 – 24 students
- Two 4’ x 8’ workbenches
- Two tall cabinets & shelving for equipment storage
- Nine computer workstations

Equipment:

- Microscope
- Accelerometer
- Valve test unit
- Computer vertical rack
- Material transfer unit
- Floor-model printer

Engineering Lab Space Program

Study Phase

**Space Title: ELECTRICAL: Power**

General Information

Quantity: 1

Square feet: 1500

Space Function and Purpose: Conduct experiments and research in machinery, power electronics, and power systems

Number of Occupants: 16

Desired Relationship to Other Space Adjacencies:

Space Needs

General Comments: High bay with rolling door at least 9 ft. high, 8 ft wide, 6 ft deep

Lighting Requirements: Standard fluorescent

Electrical Power Requirements: six 3-phase circuits (30A at 208 line voltages each) plus another set of exactly the same as above to produce DC power. Twelve 20 A single phase circuits.

Electronics / Communications Requirements: Wireless and wired (12 ports), 1 phone line

Finishes: Flooring capable of absorbing vibration as well proper insulation flooring.

Plumbing Requirements:

HVAC Requirements: Special grounding to Earth in addition to what is listed above

Special Systems: Good air circulation

Special Space and Built-in Items:

Furniture: 8 work benches, 1 instructor podium, 25 chairs, 8 racks, 2 cabinets

Equipment: line connected to outside Hydrogen tanks; 9 computers (one at each work bench and podium), 1 LCD projector, 1 high-volume printer

**Space Title: ELECTRICAL: Automation & Robotics**

General Information

Quantity: 1

Square feet: 1000

Space Function and Purpose: Robotics, control systems, supplementary computer lab

Number of Occupants: 31

Desired Relationship to Other Space Adjacencies: EE/EET Equipment Room

Space Needs

General Comments:

Lighting Requirements: Standard fluorescent

Electrical Power Requirements: Four 20A circuits

Electronics / Communications Requirements: 14 network ports, 1 phone line

Finishes:

Plumbing Requirements:

HVAC Requirements:

Special Systems:

Special Space and Built-in Items:

Furniture: 12 work benches, 1 instructor podium, 31 chairs, 3 racks, 5 cabinets

Equipment: 13 computers (one at each work bench and podium), 1 LCD projector, 1 high-volume printer

**Engineering Lab Space Program**

**EAB Addition Renovation Study December -2010**

**Study Phase**



ARCHITECTURE INTERIORS CONSTRUCTION

ERIE CLEVELAND STATE COLLEGE PITTSBURGH



Space Title: ELECTRICAL: Signal Integrity Center

General Information

Quantity: 1

Square feet: 1500

Space Function and Purpose: Signal Integrity related research and lab instruction.

Number of Occupants: 31

Desired Relationship to Other Space Adjacencies: EE/EET Equipment room

Space Needs

General Comments:

Lighting Requirements: Standard fluorescent

Electrical Power Requirements: Four 20A circuits

Electronics / Communications Requirements: 14 network ports, 1 phone line

Finishes:

Plumbing Requirements:

HVAC Requirements:

Special Systems:

Special Space and Built-in Items:

Furniture: 12 work benches, 1 instructor podium, 31 chairs/stools, 5 cabinets

Equipment: 13 computers (one at each work bench and podium), 1 LCD projector, 1 high-volume printer

Space Title: ELECTRICAL: Technician / Equipment Room

General Information

Quantity: 1

Square feet: 1500

Space Function and Purpose: Equipment/parts storage, repair, maintenance, calibration

Number of Occupants: 5

Desired Relationship to Other Space Adjacencies: All EE/EET Labs

Space Needs

General Comments: Divide into four rooms: (1) lab supervisor service room  
(2) student self-service room  
(3) large-equipment storage room  
(4) wood / metal shop

Lighting Requirements: Standard fluorescent

Electrical Power Requirements:  
(1) Two 120V 20A circuits, One 208V 3φ 20A circuit  
(2) One 120V 20A circuit  
(3) One 120V 20A circuit  
(4) [Two 120V 20A circuits] or preferably: [One 120V 20A circuit for ordinary use and One 240V 20A circuit for the band saw]

Electronics / Communications Requirements: 2 network ports, 1 phone line

Finishes:

Plumbing Requirements:

HVAC Requirements:

Special Systems: 30 Digital storage scopes with USB ports, 6 stand-alone logic analyzers

Special Space and Built-in Items: Recessed display case in hallway (similar to one across hall from Biscotti's). Could be anywhere among labs, not necessarily adjacent to equipment room.

Furniture: (1) 1 desk, 2 computer tables, 3 work benches, 25 cabinets/racks, 1 book shelf, 2 filing cabinets, misc. chairs and stools  
(2) 2 tables, 1 work bench, 8 racks  
(3) 1 cabinet, 5 racks  
(4) 2 cabinets, 3 racks, 2 work benches

Equipment: (1) 2 computers, 2 local printers  
(4) Band saw, floor mounted drill press, bench grinder, air compressor

Engineering Lab Space Program

EAB Addition Renovation Study December -2010

Study Phase

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**Space Title: ELECTRICAL: Senior Project Room**

General Information

Quantity: 1

Square feet: 1000

Space Function and Purpose:

Number of Occupants: 20

Desired Relationship to Other Space Adjacencies:

Space Needs

General Comments:

Lighting Requirements: Standard fluorescent

Electrical Power Requirements: Four 20A circuits

Electronics / Communications Requirements: 6 network ports

Finishes:

Plumbing Requirements:

HVAC Requirements:

Special Systems:

Special Space and Built-in Items:

Furniture: 10 work benches, 2 large cabinets, 7 small cabinets, 20 chairs/stools, 1 instructor podium, 1 MicroMouse maze mounted on two ping-pong tables.

Equipment: 5 networked computers (4 at work benches, 1 at podium), 4 stand-alone computers, 1 LCD projector, jig-saw, table mounted drill press

**Space Title: ELECTRICAL: General Purpose EE Lab**

General Information

Quantity: 1

Square feet: 1000

Space Function and Purpose: Electrical lab instruction

Number of Occupants: 31

Desired Relationship to Other Space Adjacencies: EE/EET Equipment room

Space Needs

General Comments:

Lighting Requirements: Standard fluorescent

Electrical Power Requirements: Four 20A circuits

Electronics / Communications Requirements: 14 network ports, 1 phone line

Finishes:

Plumbing Requirements:

HVAC Requirements:

Special Systems:

Special Space and Built-in Items:

Furniture: 12 work benches, 1 instructor podium, 25 chairs/stools, 4 cabinets

Equipment: 13 computers (one at each work bench and podium), 1 LCD projector, 1 high-volume printer

**Engineering Lab Space Program**

**Study Phase**

**Space Title: ELECTRICAL: Microwave/ Communication Lab**

General Information

Quantity: 1

Square feet: 1000

Space Function and Purpose: Microwave/communications research lab

Number of Occupants: 31

Desired Relationship to Other Space Adjacencies: EE/EET Equipment Room

Space Needs

General Comments:

Lighting Requirements: Standard fluorescent

Electrical Power Requirements: Four 20A circuits

Electronics / Communications Requirements: 14 network ports, 1 phone line

Finishes:

Plumbing Requirements:

HVAC Requirements:

Special Systems:

Special Space and Built-in Items:

Furniture: 1 instructor podium, 10 work benches, 31 chairs/stools, 1 cabinet, 2 racks, 1 soldering station

Equipment: 18 computers: (1 instructor podium, 10 networked for students, 2 stand-alone, 1 for the milling machine, 4 for Tofighi's networked cluster), SMT hotplate, microscopes, network/spectrum analyzers, 1 LCD projector, 1 high-volume printer. Also, the following:

1-High bandwidth sampling oscilloscope such as Tektronix TDS7254 (35k new, 15k refurbished) or Agilent 86100A (10-15k refurbished).

2- Fast rise time pulse generator such as Avtech AVM-4C (5-10k).

3-Optical temperature sensor system such as OpSense PCM-G1-10-100ST (2.5k)

4- RF Vector Signal Generators such as N5182A MXG or E4438C ESG (20-35k new).

5- Arbitrary waveform generator such as Tektronix AFG3102 (5 k)

6- High frequency network analyzer such as Anritsu 37369 (40-60 k, refurbished).

7- Communication Signal/Spectrum Analyzer such as Agilent N9020A MXA or E4407B-COM ESA (40-50k, new-refurbished)

**Engineering Lab Space Program**

**EAB Addition Renovation Study December -2010**

**Study Phase**

**WMF**

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ARCHITECTURE INTERIORS CONSTRUCTION

ERIE CLEVELAND STATE COLLEGE PITTSBURGH



# PENNSTATE



## NON-BINDING ARCHITECT AND ENGINEER FEE SCHEDULE

Project: EAB Addition and Renovation  
PennState Harrisburg

Firm Name: \_\_\_\_\_

	<u>Hours</u>	<u>Fee</u>
Programming/Site Analysis (confirmation)	_____	_____
Schematics	_____	_____
Design Development	_____	_____
Construction Documents	_____	_____
Bids	_____	_____
Construction Administration	_____	_____
Subtotal	_____	_____
Reimbursements (allowance)	_____	_____
<b>Total</b>	=====	=====

Please include a listing of your billable rates that will be used for this project.

Please return completed form by October 6, 2011, 2011 @ Noon to:

David Zehngut  
University Architect  
The Pennsylvania State University  
200 Physical Plant Building  
University Park, PA 16802-1118  
Phone (814) 863-3158, fax (814) 863-7757

Note: Include any costs for consultants within amounts listed, not separately.

## **Form of Agreement 1-P**

THE PENNSYLVANIA STATE UNIVERSITY

OWNER AND PROFESSIONAL

AGREEMENT

THIS AGREEMENT made this \_\_\_\_\_ day of \_\_\_\_\_

in the year Two Thousand \_\_\_\_\_, by and between THE PENNSYLVANIA STATE UNIVERSITY, a non-profit corporation and an instrumentality of the Commonwealth of Pennsylvania, having its principal offices at University Park, Centre County, created and existing under the laws of the Commonwealth of Pennsylvania, hereinafter called the "Owner," and

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

hereinafter called the "Professional," for the following Project:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Title of Project should match the documents, must include project number)

In consideration of the promises set forth herein, and with intent to be legally bound, the parties agree to the terms set forth within this Agreement.

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**DEFINITIONS:**

**Contract Documents** consist of the General Conditions of the Contract, Drawings, Specifications, Addenda issued prior to receipt of Trade Contract bids, Form of Proposal, other documents listed in the Agreement and those modifications to the Contract as follows: Owner's written authorization to the Contractor for changes to the Scope of Work, a Change Order, and a written order for a minor change in the Work issued by the Professional.

**Contractor** means the person or entity retained by the Owner to perform Work for the project and includes the Contractor's Representative.

**Construction Budget** means the project construction cost limit established by the Owner.

**Construction Cost Estimate** means a detailed breakdown of all costs associated with the scope of work required to meet the project requirements projected to the mid-point of construction.

**Final Completion** means the point at which the project is fully completed in accordance with the Contract Documents (this includes *all* physical/construction obligations, administrative obligations, and punch list obligations).

The **Owner** is The Pennsylvania State University, a non-profit corporation created and existing under the laws of the Commonwealth of Pennsylvania, and an instrumentality of the Commonwealth of Pennsylvania; this term shall include the Owner and/or the Owner's authorized representative.

The **Pennsylvania State University Design and Construction Standards** means those design and construction standards as set forth at: [http://www.opp.psu.edu/construction/standards/design\\_standards.cfm](http://www.opp.psu.edu/construction/standards/design_standards.cfm).

The **Professional** is the person lawfully licensed to practice architecture or engineering, or the firm employed to provide architectural or engineering services, for the referenced project. The term "Professional" shall mean the Professional or the Professional's authorized representative.

The **Project** shall comprise the Work defined by the Contract Documents and may include work by the Owner or other Separate Contractors, Trade Contractors, Sub-Trade Contractors or the Professional.

The **Scope of Work** means the work reasonably contemplated, required, implied, or reasonably inferable by the Contract Documents or normal standards of the building trades, whether or not explicitly contained in the Contract Documents.

**Services** means the services provided by the Professional and/or by consultants retained by the Professional for the Project.

**Substantial Completion** shall mean that stage in the progression of the Work when the Work is sufficiently complete in accordance with this Contract that the Owner can enjoy beneficial use or occupancy of the Work and can utilize the Work for its intended purpose.

**Work** means the construction and services necessary or incidental to fulfill the Contractor's or Professional's obligations for the Project in conformance with the agreement between the Owner and Contractor or the Owner and Professional.

## ARTICLE 1: PROFESSIONAL'S RESPONSIBILITIES

### 1.1 General Responsibilities

1.1.1 The Professional shall furnish or provide the architectural and engineering services as outlined herein, and any other relevant data, specifications or documents, as necessary for a complete project. The Professional shall expeditiously perform said services in a manner consistent with professional skill, care, and the orderly progress of the work. In carrying out all obligations pursuant to this Agreement, including the furnishing of Construction Documents, the Professional shall in all respects conform to the applicable professional standard of care.

1.1.2 By executing this Agreement, the Professional represents to the Owner that the Professional possesses the requisite skill, expertise, and credentials to perform the required services, and that Professional is licensed to practice by all public entities having jurisdiction over the Professional and the Project. The Professional further represents to the Owner that the Professional will maintain all necessary licenses, permits, or other authorizations necessary to act as Professional for the Project until the Professional's remaining duties hereunder have been satisfied. The Professional assumes full responsibility to the Owner for the negligent acts and omissions of the Professional's consultants or others employed or retained by the Professional in connection with the Project.

1.1.3 Execution of this Agreement by the Professional constitutes a representation that the Professional has become familiar with the Project site and the local conditions under which the Project is to be implemented.

1.1.4 The Professional shall provide the services required by this agreement in conformance with the most recent project schedule approved by the Owner.

1.1.5 The Professional shall provide Professional Services, per Exhibit A and per this agreement, in accordance with The Pennsylvania State University Design and Construction Standards referenced in Exhibit C.

1.1.6 The Professional is responsible for additional submission and presentation requirements as outlined for Board of Trustee approval or other administrative approval.

1.1.7 If a Construction Manager is hired by the Owner it will be the responsibility of the Professional to collaborate and work in concert with the Construction Manager throughout the duration of the project. Furthermore, the Professional shall reconcile all cost estimates with the Construction Manager.

1.1.8 Payment of the Professional's fees, as per in Article 9, is contingent upon completion of the documents per the attached schedule.

1.1.9 Adherence to Time Schedule. The Professional shall strictly adhere to submission schedules as set forth in this Agreement. Should the Professional become aware that he will be unable to meet any of the dates set forth in this Agreement, the Professional shall immediately notify the Owner in writing.

- The Professional shall include in the notice the reason(s) for the Professional's inability to meet the date(s) and a request that the Owner amend the time schedule.
- The Owner shall review the Professional's notice and determine whether or not to amend the time schedule.

If the Owner determines that the delay is **due to the fault of the Professional**, the Owner may amend the schedule and direct the Professional to expeditiously proceed with the design of the project, in which case **the Owner may hold the Professional responsible for any costs attributable to the delay**, or

terminate the Agreement for default of the Professional, in accordance with the provisions of this Agreement.

If the Owner determines that the delay is not due to the fault of the Professional, the Owner may amend the time schedule. The Professional agrees that such an amendment of the time schedule is his exclusive remedy for a delay and that he may not make any claims against the Owner for increased costs due to the delay.

1.1.10 Building Information Modeling (BIM). The project will be designed using Building Information Modeling (BIM). Professionals shall use BIM application(s) and software to develop project designs. Digital modeling information shall be provided to the Owner and Construction Manager for the following building systems: ALL DISCIPLINES. This may include, but is not limited to, architectural, site, civil, structural, mechanical, electrical, safety and security, controls, fire suppression and alarms, building automation and other systems. This includes relevant model element information to be used for future integration into the Owner's facilities management system. This may include, but is not limited to, hyperlinks to O&M manuals, preventative maintenance schedules, and analysis data. The Professional shall develop the Facility Data consisting of a set of intelligent elements for the Model (e.g., doors, air handlers, electrical panels). This Facility Data shall include all material definitions and attributes that are necessary for the Project facility design and construction.

Professional shall use the Model to derive accurate Construction Documents. All submitted BIM Models and associated Facility Data shall be fully compatible with Autodesk Revit 9.0 or higher. The Professional shall be responsible for updating the model during design, pre-construction, construction and post-construction record documentation (including change orders, RFI and submissions). A read-only, coordinated model shall be delivered to the Construction Manager for pre-construction coordination services and as required during construction. Collaboration with the Construction Manager is of utmost importance and attendance (co-location or web teleconference) at periodic coordination meetings will be required.

The level of detail, model content, information exchange format, and party responsible for modeling and information input will be decided upon during contract negotiations. The basis for these negotiations will be the Penn State BIM Project Execution Plan template (PSU BIM Template), which is available on the OPP website.

The Professional shall develop a project specific BIM Execution Plan (BIM Plan) documenting the collaborative process in which BIM will be implemented throughout the lifecycle of the project. The BIM Plan shall utilize the requirements identified here and in the PSU BIM Template. It shall be submitted for approval by the Owner and Construction Manager prior to the schematic design phase.

Implement quality control (QC) parameters for the Model, including the procedures described in section I of the PSU BIM Template. As a minimum, provide the following: model standards checks, CAD standards checks, and other parameters.

The following uses of BIM are required: design authoring, design reviews, 3D design coordination, energy analysis, building envelope analysis, and architectural renderings. Reference Section D.2 of the PSU BIM Template.

The Professional shall perform design and construction reviews at each submittal stage to test the Model to ensure the design intent has been followed and that there are no unintended elements in the Model.

The Professional shall locate conflicting spatial data in the Model where two elements are occupying the same space. Log hard interferences (e.g., mechanical vs. structural or mechanical vs. mechanical overlaps in the same location) and soft interferences, (e.g., conflicts regarding equipment clearance, service access, fireproofing, insulation) in a written report and resolve.

The Professional shall implement a process in which BIM software uses the model and energy attributes to determine the most effective engineering methods based on design specifications. These analysis

tools and performance simulations can significantly improve the energy consumption during lifecycle operations.

The Professional shall provide submittals in compliance with BIM Plan deliverables at stages as described in section B.8 of the PSU BIM Template.

At each Design Stage, The Professional will provide PSU with the following:

- The Model (Revit) and Facility Data (various).
- A 3-D interactive review format of the Model in Autodesk Navisworks, Adobe 3D PDF 7.0 (or later), or other format per Plan requirements. The file format for reviews can change between submittals.
- A list of all submitted files. The list should include a description, directory, and file name for each file submitted. For all CAD sheets, include the sheet title and sheet number. Identify files that have been produced from the submitted Model and Facility Data.

All costs associated with BIM, including model updates during construction, shall be included in the base contract price (contract Article 9.1.1). An as-built BIM model shall be submitted by the Design Professional to the Owner upon Final Completion of the Work for the agreed upon building systems listed in this agreement. The BIM digital information is to be considered the Architect's work product and as such, under Article 7 of the contract, is ultimately the Owner's property.

Any questions or variations from this shall be discussed and agreed upon with the OPP BIM Manager or Manager of Design Services.

~~1.1.11 Contractor Design Assist. The Owner anticipates utilizing contractor/vendor design assist on some aspects of the project. If utilized, the Professional will assume the responsibility for incorporation of the design assist information into the overall design.~~

1.1.12 LEED Responsibility for Project. The Professional shall design the project to meet the LEED target certification level and shall undertake all reasonable and necessary efforts to bring about implementation of the design specifications in a manner that will meet the LEED target certification level, including coordination with the Contractor(s) and subcontractors. The Professional shall be primarily responsible for identifying the listing of credits to be achieved during the project in an effort to meet the certification level. The Professional shall also be responsible for preparing all documentation required for submission. The Professional shall use as a guide The Pennsylvania State University LEED Policy to be provided by the Owner.

## 1.2 Schematic Phase

The Professional shall review and comply with the Project program and The Pennsylvania State University Design and Construction Standards, both as furnished by the Owner, and shall conduct appropriate visits to the Project site. The Professional shall then provide to Owner a preliminary evaluation of the program and schedule and a preliminary construction cost estimate. The Professional shall review with the Owner alternative approaches to project design and construction, as may be required.

After the Owner has approved the Project scope, cost estimate and schedule as submitted by the Professional, the Professional shall prepare and submit to the Owner, for approval, Schematic Design Documents and any other documents required by the Owner. Refer to the Design Phase Submittal Requirements document available on the Office of Physical Plant web page for a listing of submission requirements for the Schematic Phase.

Following approval of Schematic Design Documents and any other documents required at such phase by the Owner, The Professional shall submit a Construction Cost Estimate. The estimate shall be determined by the Professional using the most accurate means available.



### 1.3 Design Development Phase

After approval by the Owner of the Schematic Design Documents, and any Owner-authorized changes in Project scope or construction budget, the Professional shall prepare and submit, for approval by Owner and any government authorities, Design Development drawings and any other documents required by the Owner for said approval. These drawings and other documents shall fix building size, delineate and describe the various construction materials to be used, and indicate the structural, mechanical, and electrical systems upon which the design is based. Refer to the Design Phase Submittal Requirements document available on the Office of Physical Plant web page for a listing of submission requirements for the Design Development Phase (noted as Preliminary and Design Phase in the document).

The Professional shall provide an update of the Construction Cost Estimate and schedule and advise the Owner immediately of any adjustments.

### 1.4 Construction Document Phase

After approval by the Owner of the Design Development Phase documents, and any further Owner-authorized changes in Project scope or construction budget, the Professional shall prepare and submit to the Owner, for approval, Construction Drawings and Specifications/Project Manual (hereinafter referred to as the "Construction Documents") required by the Owner for said approval. These Construction Documents shall delineate, detail, and completely specify all materials and equipment required to fully complete construction of the Project in every respect, consistent with current standards of the profession. The Construction Documents shall completely describe all work necessary to bid and construct the Project. Refer to the Design Phase Submittal Requirements document dated August 2006 (or any subsequent updates), available on the Office of Physical Plant web page, for a listing of submission requirements for the Construction Document Phase.

Any review and approval by the Owner of the Construction Documents shall not be deemed to diminish the Professional's obligations under this Agreement.

The Professional shall provide an update of the Construction Cost Estimate and schedule and shall advise the Owner immediately of any adjustments.

The Professional shall be responsible for completing all of the appropriate planning modules, soil and erosion control plans, and other documents which may be required.

The Professional shall be responsible for obtaining, on behalf of the Owner, whatever approvals are necessary to connect to non-Owner-owned utility lines.

The Professional shall coordinate the Construction Documents for all of the separate Prime Contracts or trade packages, as required, to protect against omissions, conflicts, overlaps, or duplications of any items of work or materials on the Project.

The Professional shall coordinate the services of all design consultants for the Project, including those retained by the Owner.

### 1.5 Bidding Phase

After approval by the Owner of the Construction Documents, the Professional shall prepare and distribute all necessary bidding correspondence and documents, evaluate bid proposals, attend pre-bid or pre-award meetings, clarify the scope or intent of the Construction Documents, evaluate proposed subcontractors, and assist in the preparation of construction contracts.

## 1.6 Construction Phase

The Professional shall issue a set of construction documents that incorporate all bidding documents and revisions per addenda prior to the start of construction.

The Professional's responsibility under this Agreement for Construction Phase services commences with the execution of the Contract(s) between the Contractor(s) and the Owner and terminates no earlier than the expiration of the Contractor's one-year guarantee period against defective materials, equipment, and/or workmanship. This paragraph is not intended to, and shall not be construed as, affecting in any way the calculation of any applicable legal statutes of limitation.

Administration, by the Professional, of the construction contract(s) shall be as outlined below and in accordance with the General Conditions of the Contract for Construction. The Professional agrees to perform all of its obligations under this Agreement consistent with said General Conditions. The extent of the Professional's duties and responsibilities and the limitations of its authority as specified thereunder shall not be modified without written agreement between the Owner and the Professional.

The Professional shall not be responsible for the Contractor's construction means, methods, techniques, sequences, or procedures, or for safety precautions and programs in connection with the work. However, if the Professional has actual knowledge of safety violations, the Professional shall immediately alert the relevant Contractor or Subcontractor and shall give prompt written notice to the Owner.

The Professional shall not be responsible for the Contractor's failure to carry out the Work in accordance with the Contract Documents. The Professional shall not be deemed to have control over or charge of acts or omissions of the Contractor, Subcontractors, or their agents or employees, or any other persons performing portions of the Work. However, the Professional shall provide all required assistance to the Contractor, Subcontractors and/or agents and employees in order to facilitate the appropriate and timely performance of the Work. Furthermore, Professional is responsible for notifying the Owner and the Contractor of the Contractor's failure to carry out the Work in accordance with the Contract Documents upon observing such failure by the Contractor.

1.6.1 Schedule of Values. Upon receipt, the Professional shall carefully review and examine the Contractor's Schedule of Values, together with any supporting documentation or data which the Owner or the Professional may require from the Contractor. The purpose of such review and examination will be to protect the Owner from an unbalanced Schedule of Values which allocates greater value to certain elements of the Work than is indicated by such supporting documentation or data or than is reasonable under the circumstances. If the Schedule of Values is found to be inappropriate, or if the supporting documentation or data is deemed to be inadequate, and unless the Owner directs the Professional to the contrary in writing, the Schedule of Values shall be returned to the Contractor for revision or supporting documentation or data. After making such examination, if the Schedule of Values is found to be appropriate as submitted or, if necessary, as revised, the Professional shall sign the Schedule of Values thereby indicating the Professional's informed belief that the Schedule of Values constitutes a reasonable, balanced basis for payment of the Contract Price to the Contractor. The Professional shall not sign such Schedule of Values in the absence of such belief unless directed to do so, in writing, by the Owner. The Professional shall provide the Owner with a signed copy of the Schedule of Values after approval.

1.6.2 Access to Work. The Professional and its authorized representatives shall have full and safe access to the work at all times.

1.6.3 Visits to the Site/Inspection. The Professional and any consultants retained by the Professional, or an authorized and qualified representative, shall visit the Project periodically as required by the Owner during periods of active construction in order to review the progress of the work, and take such actions as are necessary or appropriate to achieve the requirements of the Construction Documents in the work of the responsible Contractors, including advising the Owner's representatives as to particular matters of concern. It shall also be the duty of the Professional to have its Consultants visit the site periodically as required during their respective Phases of the work, at such intervals as may reasonably be deemed

necessary by the Owner and the Professional, to review their respective Phases of the work in order to achieve the requirements of the Construction Documents.

The purpose of such site visits and reviews will be to determine the quality, quantity, and progress of the Work in comparison with the requirements of the Construction Documents. In making such reviews, the Professional shall exercise care to protect the Owner from defects or deficiencies in the Work, from unexcused delays in the schedule, and from overpayment to the Contractor. Following each such review, the Professional shall submit a written report within (5) calendar days of such review, together with any appropriate comments or recommendations, to the Owner.

Whenever, in the Professional's opinion, it is necessary or advisable, the Professional shall require special inspection or testing of the Work in accordance with the provisions of the Construction Documents whether or not such Work is fabricated, installed, or completed. The Professional shall advise the Owner of all such occurrences requiring special inspection or testing of the Work and shall obtain prior approval from Owner before any funds are committed for inspection, beyond what has already been budgeted.

1.6.4 Approval of Payment to Contractors. Based on the Professional's review of the Project, the Professional will recommend, within seven (7) calendar days after receipt, approval or rejection of payment on the Application-Certificate of Payment. Approval of the Certificate of Payment shall constitute a representation by the Professional to the Owner that the work has progressed to the point indicated on the Application, and that to the best of the Professional's knowledge, information, and belief, the quality of the work is in accordance with the Contract Documents.

The Professional shall make recommendations to the Owner for the withholding of any payment, or portion thereof, due to inadequate progress and/or performance of the Contract.

The Professional agrees that time is of the essence with respect to this provision.

1.6.5 Interpreter. The Professional will be, in the first instance, the interpreter of the requirements of the Contract Documents. The Professional will, within a reasonable time as determined by the Owner, render such interpretation as it may deem necessary for the proper execution or Progress of the Work. All interpretations by the Professional shall be defined in writing and/or by drawing and shall be consistent with the intent of the Contract Documents.

In addition to the above, the Professional shall be required to attend, at the determination of the Owner, any and all Project site conferences dealing with interpretation of the Contract Documents.

The Professional's decisions, with Owner's prior approval, shall in matters relating to aesthetic effect be final if consistent with the intent of the Construction Documents.

1.6.6 Review of Contractor's Shop Drawings and Materials. The Professional shall review, approve, and process, subject to the right of review by the Owner, Shop Drawings to verify compliance with the Contract Documents and all product data, samples, materials, and other submissions of the Contractor required by the Contract Documents for conformity to and in harmony with the design concept of the Project and for compliance with the requirements of the Contract Documents. The Professional shall not approve any substitution of specified materials and/or equipment without first obtaining the Owner's consent. Approval by the Professional of the Contractor's submittal shall constitute the Professional's representation in accordance with Article 5 of the General Conditions of the Contract for Construction to the Owner that such submittal is in conformance with the Contract Documents.

When the Contractor is required by the Contract Documents to provide professional certification of performance characteristics of materials, systems, or equipment, the Professional shall be entitled to rely upon such certification to establish that the materials, systems, or equipment will meet performance criteria required by the Contract Documents.

Based on the priorities of the construction schedule, the Prime Contractor(s) shall submit a shop drawing submittal schedule on or before the Second Regular Job Conference. The Professional shall review and check the shop drawing submittal schedule within fourteen (14) calendar days of receipt from the Contractor.

The Professional shall return the approved shop drawings, or detailed notation for resubmission, if required, within fourteen (14) calendar days after receipt from the Contractor unless mutually agreed otherwise by the Professional, Owner, and Contractor. The Professional shall act on any resubmissions within seven (7) calendar days of receipt thereof unless mutually agreed otherwise by the Professional, Owner, and Contractor. A detailed log shall be maintained by the Professional as to time of receipt of the shop drawings and time of return, with adequate notes as to their disposition.

Refer to 1.6.12 for electronic scanning and submission requirement of approved project shop drawings at the completion of the project.

The Professional is responsible to incorporate into the shop drawings comments by the Owner or Owner's authorized representative prior to the shop drawings being returned to the Contractor.

The Professional agrees that time is of the essence of this provision.

1.6.7 Job Conference Reports. The Professional shall take and retain an accurate and complete record of the biweekly Job Conference meetings and shall prepare and distribute summary minutes in a format approved by the Owner of each meeting within five (5) calendar days to the Owner, the Contractors, and all other interested parties.

1.6.8 Change Orders. The Professional shall review all Change Order requests within seven (7) calendar days and shall advise Owner, in writing, with respect to the necessity or advisability of same. The Professional shall also determine whether the cost is fair and reasonable for the additional work associated with the Change Order. In so doing, Professional shall provide all pertinent documents and data to the Owner, who shall make all decisions regarding approval or rejection of Change Order requests. The Professional shall maintain an appropriate Change Order log. The Professional may, after consultation with the Owner, authorize minor changes in the Work which do not involve an adjustment in the Contract sum or an extension of the Contract time and which are consistent with the intent of the Contract Documents.

1.6.9 Rejection of Work. The Professional is authorized and obligated to reject work which does not conform to the Contract Documents and shall immediately notify the Owner to stop a Contractor's work whenever, in the Professional's reasonable opinion, such action is necessary for the proper performance of the Construction Contract Work. The Professional shall not be liable to the Owner for the consequences of any recommendation made by the Professional in good faith, and in the exercise of due care in recommending to stop or not to stop the work.

1.6.10 Substantial Completion, Final, and One-Year Guarantee Inspections. The Professional and its consultants shall participate in Substantial Completion and Final Inspections to affix the dates of Substantial and Final Completion and shall concur in the report of Final Completion to the Owner prior to approving the Contractor's application for Final Payment. The Professional shall produce the punch list document and provide any direction, coordination or follow-up that may be necessary to correct any deviation from the specifications and requirements set forth in the Contract Documents and Construction Documents. The Professional shall also acquire for Owner the Certificate of Occupancy.

The Professional and its consultants shall participate in an inspection prior to the expiration of the one (1) year guarantee period against defective materials, equipment, and/or workmanship to determine any defects in materials, equipment, and/or workmanship since the date of Substantial Completion. The Professional shall produce the (1) year guarantee period punch list document for distribution to the Contractor(s) and provide follow-up to verify all items are completed to the satisfaction of the Owner.



1.6.11 Operations and Maintenance Data. At the time of Substantial Completion of the Project, the Professional shall review and approve all required close-out documentation required per the Specifications including, but not limited to, manufacturers' operating instructions, maintenance instructions, certificates, warranties, guaranties, and other pertinent operating and maintenance data.

The Professional shall electronically scan all reviewed and approved Operation and Maintenance data being returned to the Contractor and provide a complete set of Operation and Maintenance data for the Project in electronic .pdf format (organized by building system) to the Owner within (1) month after receipt from the Contractor.

1.6.12 Record Drawings. At the time of Final Completion of the Project, the Professional shall collect from the Prime Contractor(s) their complete sets of as-built drawings and will, within 30 days after receipt from the Contractors, transpose all the changes recorded by the Contractors, onto a full set of reproducible drawings which shall become the record (as-built) drawings of the Project. The record drawings must also be put on electronic media compatible with the Owner's ACAD system. The Professional shall submit the as-built drawing set to the Owner in both ACAD dwg format and electronic pdf format (if project is utilizing Building Information Modeling an additional record drawing format shall be required and approved by the Owner).

The Professional shall electronically scan all approved shop drawings being returned to the Contractor and provide a complete set of the approved shop drawings for the Project in electronic pdf format (organized by CSI division) to the Owner within (1) month after Substantial Completion of the project.

1.6.13 Corrections. The Professional shall, without additional compensation, promptly correct any errors, omissions, deficiencies, or conflicts in its work product.

1.6.14 Errors and Omissions. If it becomes necessary during the course of construction to issue change orders which increase the cost of the Project and which are due to an error or omission by the Professional in providing plans, drawings, specifications or coordination for the Project, the Professional shall be assessed in an amount equal to the difference between the amount of the change order and what the Owner would have paid had the error or omission not occurred. Where applicable, the assessment shall include any administrative costs incurred by the Owner and costs associated with removal or replacement of work necessary in order to implement the change order. An omission change order is one which results from the Professional's breach in the applicable professional standard of care, resulting in a failure to include required features, items or design elements in the plans, drawings or specifications. An error change order is one which results from the Professional's breach in the applicable professional standard of care, resulting in mistakes or deficiencies in the plans, drawings or specifications.

At the completion of the project, the parties shall exercise good faith in seeking to amicably resolve any disputes that may exist regarding change orders. In the event that the parties are unable to reach an amicable resolution, the dispute resolution provision of Article 12.1 shall apply.

## ARTICLE 2: ADDITIONAL RESPONSIBILITIES OF PROFESSIONAL

### 2.1 Compliance

The Professional is responsible for the compliance of the Construction Documents with all applicable permits, laws, regulations, and ordinances of all commissions, agencies and governments, federal, state and local, insofar as they are applicable to, and have jurisdiction over, the Project. The Professional shall make all required submittals with the advance knowledge of the Owner to, and shall obtain all required approvals from, the applicable agency in a timely manner so as not to cause delays to the Project. The Professional shall also attend all hearings/meetings required for securing necessary approvals and permits.

The Professional shall be responsible for producing a submission document set for approval by Labor and Industry as required by the Commonwealth of Pennsylvania to obtain the necessary building permit.

The Professional shall also be responsible for additional submissions as required by the Labor and Industry Building permit processes and procedures throughout the project design and construction.

## 2.2 Cooperation With Local Bodies

During the design of the Project, the Professional shall keep informed and comply with the requirements of all local zoning, planning, and supervisory bodies. Should these requirements substantially increase the cost of the Project, or should any required approvals be withheld by the local bodies, the Professional shall immediately notify the Owner.

## 2.3 Proprietary Items, Copyrights, Patents

The Professional shall not include in the design of the Project unless directed by the Owner any equipment, material, or mode of construction which is proprietary or which contains a copyright or patent right relating to designs, plans, drawings, or specifications, unless the equipment, material, or mode of construction is different and fairly considered superior in quality and performance. If the Professional includes in the design of the Project any equipment, material, or mode of construction which is proprietary, it shall have prior approval by the Owner and it shall only be because the item is different and fairly considered superior in quality and performance, and not for the purpose of preventing or restricting competitive bidding.

## 2.4 Steel Products Procurement Act

The Professional is responsible for compliance with the Pennsylvania Steel Products Procurement Act, 73 P.S. § 188, *et. seq* ("the Act"). In the event that Professional selects and/or approves any steel products (as defined in the Act) for use in the Project, Professional shall delineate, list and approve as acceptable only steel products that are in compliance with the Act. If Professional determines that any steel products are not produced in the United States in sufficient quantities to meet the requirements of the Project or Contract Documents, Professional shall notify the Owner.

## ARTICLE 3: OPTIONAL ADDITIONAL SERVICES

Unless required by the Project Scope, the services performed by the Professional, Professional's employees, and Professional's consultants as outlined in this Article are not included in Basic Services and shall be paid for by the Owner as provided in this Agreement in addition to the compensation for Basic Services.

None of these services shall be provided by the Professional, whether they are requested by the Owner or required due to circumstances unknown at the time of the execution of the Agreement, until approval in writing has been given by the Owner.

### 3.1 Project Representation

If more extensive representation at the site by the Professional is required by the Owner than is provided for under Basic Services, Paragraph 1.6, Construction Phase, the Professional shall provide one or more Project representatives to assist in carrying out such additional on-site representation.

Additional Project representative(s) shall be selected, employed, and directed by the Professional with the approval of the Owner, and the Professional shall be compensated therefore as mutually agreed, in advance, between the Owner and the Professional. Such supplemental agreement letter shall also delineate the duties and responsibilities of the additional Project representative(s).

### 3.2 Revisions to Approved Drawings and Specifications Prior to Construction Phase

3.2.1 Making revisions to the drawings and specifications requested by the Owner subsequent to the Owner's approval of the Construction Documents as outlined in Paragraph 1.4, Construction Document Phase, unless required to keep the estimated Construction Costs within the amount budgeted for same.

3.2.2 Making revisions to the drawings and specifications required by the enactment or revisions of codes, laws, or regulations subsequent to the completion of the Construction Documents as approved by the Owner.

### 3.3 Preplanning

Providing special analysis of the Owner's needs such as selection, planning, and development of the site; economic, demographic, and/or financial feasibility; preliminary design criteria and budget estimates; or other special studies except as herein provided as part of Basic Services.

### 3.4 Specialized Consultants

Providing unusual or specialized Consultant services other than those consistent with the inherent requirements of the Project scope and required to meet the functional needs of the Project.

### 3.5 Surveys

Providing a complete topographic survey and/or related aerial photography, ground control, photogrammetric plotting, property boundary survey, and the preparation of a metes and bounds legal description and a related plot.

### 3.6 Special Studies

Providing services related to the preparation of Environmental Assessments and/or Environmental Impact Statements, Energy Impact Statements, Analysis, or Feasibility Studies as may be required by local, state or federal government agencies, provided such services are in addition to the Project scope requirements.

### 3.7 Other Services

Providing services mutually agreed to that are not otherwise included in this Agreement.

## ARTICLE 4: INDEMNIFICATION

To the fullest extent permitted by law, The Professional shall indemnify and hold harmless the Owner and the Owner's respective officers, directors, trustees, agents, servants, and employees from and against any and all liability, claims, losses, costs, expenses or damages, including reasonable attorneys' fees, costs and expenses, for property damage, bodily injury or death, that may arise as a result of the performance or failure to perform services and duties pursuant to this Agreement, but only to the extent caused by a failure to conform to the applicable professional standard of care by the Professional or Professional's agents, employees or consultants, or anyone employed directly or indirectly by any one of them or by anyone for whose acts any of them may be liable. Nothing in this indemnity section shall be construed to limit the insurance obligations agreed to herein.

## ARTICLE 5: OWNER'S RESPONSIBILITIES

### 5.1 Basic Information

The Owner shall provide the Professional all information available at the time regarding requirements for the Project. Such information shall include:

5.1.1 A Project Program setting forth the Owner's objectives, space requirements and relationships, special equipment, and systems and site requirements.

5.1.2 A Project Budget including the amount allocated for the Construction Cost and all other anticipated costs and expenses.

5.1.3 A Project Schedule setting forth the times allotted for the Design and Construction Phases of the Project.

If the information furnished is not sufficient for the process of initiation of design solutions, the Professional shall notify the Owner immediately.

## 5.2 Surveys

The Owner shall furnish to the Professional, as available, surveys describing (as applicable) grades and lines of streets, alleys and pavements; the location of all rights-of-way restrictions, easements, encroachments, zoning classification, boundaries and contours of the site; location, dimensions and other necessary data pertaining to any existing buildings, other improvements and trees; information concerning existing utilities throughout the site, including inverts and depth; and shall establish a Project benchmark.

## 5.3 Geotechnical Engineering Services

The Owner shall pay the costs of all geotechnical engineering services required for the Project and requested by the Professional and Owner. Such services shall include, but are not limited to, tests borings, samples, field and laboratory reports, final soil reports and logs, and foundation engineering evaluations and recommendations.

## 5.4 Miscellaneous Tests, Inspections, and Reports

The Owner shall furnish, at the Owner's expense, air and water pollution, hazardous material, environmental, and any other miscellaneous laboratory tests, inspections, and reports as may be required.

## 5.5 Approval or Disapproval of Design Work

Any approval or failure of the Owner to disapprove or reject design work submitted by the Professional shall not constitute an acceptance of the work such as to relieve the Professional of his full responsibility to the Owner for the proper and professional performance of all design work on the Project.

## 5.6 Owner Response

The Owner shall act with reasonable promptness on all submissions from the Professional, which require action by the Owner, in order to avoid unreasonable delay in the progression of the Project through the various Phases outlined in Article 1.

## 5.7 Notice of Nonconformance

The Owner shall notify the Professional immediately if the Owner becomes or is made aware of any fault or defect in the Project or nonconformance by any party with the Contract Documents.



## 5.8 Copies of Owner's Documents

The Owner shall supply the Professional with copies of the Owner's Form of Agreement between Owner and Contractor and General Conditions of the Contract for Construction for inclusion, by the Professional, in the Bidding Documents. It shall be the Professional's responsibility to access, review, and implement The Pennsylvania State University Design and Construction Standards information provided by the Owner on the Office of Physical Plant web page. Refer to web page content listing in Exhibit C.

## 5.9 Preconstruction Services

The Owner intends to independently retain a Construction Management firm to provide preconstruction and construction services. The Professional will assist the Owner in reviewing proposals and allow for two full days of meetings to interview and rank prospective construction management firms.

## ARTICLE 6: CONSTRUCTION COST

### 6.1 Project Cost Determination

The Construction Cost for all work described in the Construction Documents, as approved by the Owner shall be determined as outlined below, with precedence in the order listed:

6.1.1 For completed construction, the total cost to the Owner for such construction work less the amount of any change order work necessary because of errors or omissions on the part of the Professional as defined in Subparagraph 1.6.14 Errors and Omissions.

6.1.2 If the Project is not constructed, the sum of the lowest bona fide bids(s) received for all of the work, providing said bids do not exceed the fixed limitation of Construction as defined in Paragraph 9.1.4 or as amended by written agreement by the Owner and Professional as the basis for design. If such bids exceed the limitation previously agreed upon, said limitation shall become the basis of cost.

6.1.3 If bids are not received, the latest Construction Cost Estimate prepared by the Professional, provided such estimate does not exceed the fixed limitation of construction as defined in Paragraph 9.1.4 or as amended by written agreement by the Owner and Professional as the basis for design.

### 6.2 Notification

It shall be the Professional's responsibility to promptly notify the Owner if, in the Professional's opinion, the Project cannot be designed and constructed within the fixed limitation on the cost of construction as authorized by the Owner. It is the Professional's responsibility to so notify the Owner as soon as such a situation becomes, or should have become, apparent to the Professional.

### 6.3 Owner Options

If, without written acknowledgment by the Owner, the Professional permits the Construction Contracts to be bid, and if the fixed limitation on the cost of Construction is exceeded by the lowest bona fide bid(s) or negotiated proposal, the Owner may: (1) give written approval of an increase in such fixed limit; (2) authorize rebidding or renegotiating of the Project; (3) terminate the Project and this Agreement in accordance herewith; or (4) cooperate in revising the Project scope or quality, or both, as required to reduce the construction cost. In the case of (4), the Professional, without additional charge to the Owner, shall consult with the Owner and shall revise and modify the Construction Documents as necessary to achieve compliance with the fixed limitation on construction cost. Absent negligence on the part of the Professional in making its estimates of probable construction cost, such modifications and revisions shall be the limit of the Professional's responsibility arising from the establishment of such fixed limitation of construction costs, and having done so, the Professional shall be entitled to compensation for all other services performed, in accordance with this Agreement.

If, after notification to the Owner by the Professional that the Project cannot be designed and constructed within the fixed limitation on the cost of construction, the Professional is by written authorization by the Owner instructed to proceed without a change in the Project program, design, or in the fixed limitation on the cost of construction, the Professional shall not be responsible for the cost of any subsequent redesign.

## ARTICLE 7: OWNERSHIP AND USE OF DOCUMENTS

All preliminary studies, Construction Documents, as-built documents, record drawings, special requirements, cost estimates, and all other data compiled by the Professional under this Agreement shall become the property of the Owner and may be used for any purpose desired by the Owner except to use for the construction of an identical facility not covered by this Agreement. The Professional shall not be liable for any reuse of these documents by the Owner.

## ARTICLE 8: PROFESSIONAL'S EXPENSES

### 8.1 Billable Hourly Rates

8.1.1 Direct personnel expense is defined as the direct salaries of the principals, associates, and employees of the firm who are assigned to and are productively engaged on the Project, including clerical employees.

8.1.2 Billable hourly rates for this project are included in the personnel listing in Exhibit B. Billable hourly rates shall be the direct personnel expense rate for any principal's time and a multiple of a maximum of (2.5) times the direct personnel expense per hour for the Professional's employees which shall include mandatory and customary benefits such as employment taxes, statutory employee benefits, insurance, sick leave, holidays, vacations, pensions, and similar contributions and benefits.

8.1.3 The billable hourly rates set forth in Exhibit B may be adjusted annually, subject to the Owner's approval, in accordance with generally accepted salary review practices of the profession. Payroll certification shall be provided by the Professional to the Owner upon demand.

### 8.2 Reimbursable Expenses

Reimbursable expenses are in addition to compensation for Basic and Additional Services and include those expenses as follows for which the Professional shall be reimbursed a not-to-exceed amount for his direct "out-of-pocket" costs (no mark-up allowed on reimbursable expenses). Reimbursable expenses shall be submitted with supporting documentation. Where requested or authorized by the Owner, the following shall be reimbursable:

8.2.1 Out-of-town and out-of-state travel expenses and any necessary fee or permit payment required and paid to any governing body or authority having jurisdiction over the Project. Air travel expenses shall be approved in advance by the Owner. Maximum individual per diem expenses for travel to the job site shall be based on the Owner's allowable per diem for lodging and meals for that location.

8.2.2 Expense of reproductions including reproductions of record drawings, postage and handling of Drawings, Specifications, and other documents including the preparation and distribution of all necessary bidding correspondence and documents, receipt of bid proposals, and construction contract preparation. Reproductions made for the Professional's own use or review shall not be included.

8.2.3 Expense of renderings, models, mock-ups requested by the Owner, and/or discs for electronic format submissions of record drawings.

8.2.4 Expenses of specialized consultants identified as optional additional services in Article 3 of this Agreement.

8.2.5 Reimbursable expenses for individual travel, meals, and lodging expenses are limited to individuals under the direct employ of the Professional or their approved consultants.

8.3 Cost for Consultants (consultants not included in the Basic Services proposal/procured after award)

The Professional shall be reimbursed on a multiple of one and one-tenth (1.1) times the amounts billed to the Professional for such services.

ARTICLE 9: COMPENSATION AND PAYMENT

9.1 Compensation and Payment

9.1.1 The Owner agrees to pay the Professional as compensation for those Basic Services described in Article 1, Article 2, and any other agreed upon services described in Article 3:

an amount not-to-exceed \_\_\_\_\_ Dollars (\$) \_\_\_\_\_  
for the Professional's Personnel Expense as defined in Paragraph 8.1 and cost for Consultants.

9.1.2 Payment for Basic Services will be made monthly by the Owner in proportion to the service actually performed, but not to exceed the following percentages at the completion of each Phase.

Schematic Phase	15%
Design Development Phase	20%
Construction Document Phase	35%
Bidding Phase	5%
Construction Phase/Close-Out	25%

The close-out portion of the project refers to the development of the punch list and required follow-up, the submission of the as-built documents and other close-out document requirements, ongoing commissioning support, ongoing support of design-related project issues, and the performance of the (1) year bond inspection and punch-list development.

9.1.3 Reimbursable Expenses

The Owner agrees to pay the Professional as compensation for the Professional's Reimbursable Expenses, as defined in Paragraph 8.2, an amount not-to-exceed \_\_\_\_\_ Dollars (\$) \_\_\_\_\_).

9.1.4 Cost of Construction

The fixed limitation on the cost of construction as defined by this Agreement shall be \_\_\_\_\_.

9.2 Optional Additional Services Compensation

If approved, the Owner agrees to compensate the Professional for Optional Additional Services beyond Basic Services, as defined in Article 3 in accordance with the rates defined in Exhibit B and as approved by the Owner.

9.3 Payment Procedures

9.3.1 Payments are due and payable forty-five (45) days from the date that the Professional's invoice is approved by the Owner.

9.3.2 Submission of the Professional's invoice for final payment and reimbursement shall further constitute the Professional's representation to the Owner that, upon receipt from the Owner of the amount invoiced, all obligations of the Professional to others, including its consultants, incurred in connection with the Project will be paid in full.

9.3.3 Documentation accurately reflecting the time expended by the Professional and its personnel and records of Reimbursable Expenses shall be maintained by the Professional and shall be available to the Owner for review and copying upon request.

#### 9.4 Owner's Right to Withhold Payment

In the event that the Owner becomes credibly informed that any representation of the Professional provided pursuant to Articles 8 or 9 is wholly or partially inaccurate, the Owner may withhold payment of sums then or in the future otherwise due to the Professional until the inaccuracy, and the cause thereof, is corrected to the Owner's reasonable satisfaction.

### ARTICLE 10: INSURANCE

#### 10.1 Professional Liability Insurance

The Professional shall secure and maintain, at its sole cost and expense, Professional Liability Insurance to protect against loss resulting from design errors and omissions, failure to coordinate the Construction Documents of the Project, and failure to execute the construction administration duties for the Project.

10.1.1 Unless otherwise specifically provided in this Agreement, the Professional shall secure and maintain Professional Liability Insurance with limits not less than \$1,000,000, or the total of the Professional's fee, whichever is greater.

10.1.2 The Professional shall secure and maintain Professional Liability Insurance, as required above, up to and including one year after the date of the (1) year guarantee inspection of the contracts under the Project.

#### 10.2 General Liability Insurance

The Professional shall secure and maintain, at its sole cost and expense, adequate General Liability Insurance to protect the Owner and the Owner's respective officers, agents, servants, and employees against claims arising out of the Professional's services during the design and construction of the Project for damages in law or equity for property damage and bodily injury, including wrongful death. The Owner shall be named as an additional insured in the policy, and the Professional shall submit a Certificate of Insurance to the Owner prior to execution of the Agreement. The limits of coverage shall be not less than \$1,000,000, or the total of the Professional's fee, whichever is greater. The Professional is required to secure and maintain General Liability Insurance, up to and including one year after the date of the (1) year guarantee inspection of the contracts under the Project.

#### 10.3 Certificate of Insurance

The Professional shall furnish to the Owner annually, unless otherwise requested, during the active terms of this Agreement, a Certificate from an Insurance Carrier authorized to do business in Pennsylvania indicating: (1) the existence of the insurance required under this Article; (2) the amount of the deductible; and (3) the amount of coverage of such insurance. The Professional shall submit a Certificate of Insurance covering the Professional Liability Insurance requirement up to and including one year after the date of the (1) year guarantee inspection of the contracts under the Project.

#### 10.4 Failure to Comply with Insurance Requirements



During any period in which the Professional is not in compliance with the terms of this Article, no compensation shall be paid by the Owner to the Professional.

## ARTICLE 11: TERMINATION, ABANDONMENT, SUSPENSION, REACTIVATION

### 11.1 Termination by Owner

The Owner shall have the right at any time, for any reason, to terminate this Agreement upon not less than seven (7) calendar days' written notice to the Professional. The Professional shall comply with all reasonable instructions of the Owner then or subsequently given relating to such termination, including but not limited to: instructions concerning delivery of drawings, sketches, and other architectural/engineering data to the Owner; discontinuance of the work on outstanding contracts; and furnishing to the Owner information concerning all actions to be taken respecting outstanding agreements with consultants, contracts, awards, orders, or other matters.

Copies of Construction Documents and any other materials in existence as of the date of termination will be furnished to the Owner as requested.

### 11.2 Compensation in the Event of Termination

In the event of termination, the Professional shall be compensated for its services to the termination date based upon services performed on any Phase to the termination date in accordance with the Compensation and Payment schedule contained herein at Article 9.1.2.

Such compensation shall be the Professional's sole and exclusive remedy for termination.

### 11.3 Suspension of Work

The Owner may, at any time, direct the Professional to suspend all work on the Project, or on any part thereof, pending receipt of further notice from the Owner. In all such cases the Owner and the Professional shall agree upon an appropriate phasing-out of the work in such a manner that the work may be resumed with a minimum of added cost to the Owner, but in no event shall the work be continued beyond the completion of the portion of the project then in progress. The Professional shall be compensated as if the Agreement had been terminated at the completion of the agreed Phase. If work is suspended during the Construction Phase, compensation shall be paid for all Professional services provided to the date of suspension, but no additional compensation shall be paid during the period of suspension.

### 11.4 Reactivation Compensation

When a Project has been suspended or terminated for a longer time than six (6) months and is subsequently reactivated using the same Professional, the Owner and the Professional shall agree, prior to the beginning of the reactivation work, upon a lump sum, or other basis, of reimbursement to the Professional for its extra start-up costs occasioned as a result of the work having been suspended or terminated.

## ARTICLE 12: MISCELLANEOUS PROVISIONS

### 12.1 Dispute Resolution / Applicable Law

After Final Completion of the Project, any and all claims, disputes or controversies arising under, out of, or in connection with this Agreement, which the parties shall be unable to resolve within sixty (60) days of the time when the issue is first raised with the other party, shall be mediated in good faith. The party raising such dispute shall promptly advise the other party of such claim, dispute or controversy, in writing, describing in reasonable detail the nature of such dispute. By not later than five (5) business days after the recipient has received such notice of dispute, each party shall have selected for itself a representative who shall have the authority to bind such party, and shall additionally have advised the other party in

writing of the name and title of such representative. By not later than ten (10) business days after the date of such notice of dispute, the parties shall mutually select a Pennsylvania-based mediator, and such representatives shall schedule a date for mediation, not to exceed one (1) day in length, and less where applicable. The mediation session shall take place on the University Park Campus of The Pennsylvania State University, or upon the campus where the Work was performed, at the option of the Owner. The parties shall enter into good faith mediation and shall share the costs equally.

If the representatives of the parties have not been able to resolve the dispute within fifteen (15) business days after such mediation hearing, the parties shall have the right to pursue any other remedies legally available to resolve such dispute in the Court of Common Pleas of Centre County, Pennsylvania, jurisdiction to which the parties to this Agreement hereby irrevocably consent and submit.

Notwithstanding the foregoing, nothing in this clause shall be construed to waive any rights or timely performance of any obligations existing under this Agreement.

In all respects, this Agreement shall be interpreted and construed in accordance with the internal laws (and not the law of conflicts) of the Commonwealth of Pennsylvania.

#### 12.2 Successors and Assigns

This Agreement shall be binding on the successors and assigns of the parties hereto.

#### 12.3 Assignment

Neither the Owner nor the Professional shall assign, sublet, or in any manner transfer any right, duty, or obligation under this Agreement without prior written consent of the other party.

#### 12.4 Extent of Agreement

This Agreement, including any and all schedules, proposals and/or terms and conditions attached hereto, represent the entire and integrated agreement between the Owner and the Professional and supersedes all prior negotiations, representations, or agreements, either written or oral. This Agreement may be amended only by written instrument signed by both the Owner and the Professional. In the event of a conflict between the provisions of this Agreement and those of any other document, including any that are attached hereto, the provisions of this Agreement shall prevail. Furthermore, any provision, terms or conditions contained within any documents attached as exhibits hereto are void and lacking in any force or effect, with the exception of entries which define the Professional's scope of work for the Project, Professional's billable hourly rates, and project schedule.

#### 12.5 Third Party

Nothing contained in this Agreement shall create a contractual relationship with or a cause of action in favor of a third party against either the Owner or the Professional.

#### 12.6 Hazardous Material

Unless otherwise provided in this Agreement, the Professional and its consultants shall have no responsibility for the discovery, presence, handling, removal, or disposal of, or exposure of persons to hazardous materials in any form at the Project site, including but not limited to asbestos, asbestos products, polychlorinated biphenyl (PCB), or other toxic material.

If the Professional encounters or suspects hazardous or toxic material, the Professional shall advise the Owner immediately.

### 12.7 Promotional Material

The Professional shall not issue or disclose to third parties any information relating to the Project without prior written consent of the Owner, except to the extent necessary to obtain necessary permits or governmental approvals, coordinate the Work with the Owner's agent, Contractors, Subcontractors, etc. The Professional may, with written consent of the Owner, include design representation of the Project, including interior and exterior photographs, among the Professional's promotional and professional materials.

### 12.8 Terms/General Conditions

Terms contained in this Agreement and which are not defined herein shall have the same meaning as those in the Owner's Form of Agreement between Owner and Contractor and the Owner's General Conditions of the Contract for Construction, current as of the date of this Agreement.

## ARTICLE 13: SCHEDULE OF EXHIBITS

The attached Exhibits are part of this agreement:

Exhibit A: Professional's proposal dated \_\_\_\_\_ **NOTE:** Professional's proposal is attached solely for purposes of defining Professional's scope of work. As per Article 12.4 of this Agreement, additional terms and conditions that may be included in the Professional's proposal, beyond those relating to scope of work, are void, without effect, and not considered to be part of this Agreement.

Exhibit B: Professional's Billable Hourly Rates.

Exhibit C: The Pennsylvania State University Design and Construction Standards listing (screen print from the Office of Physical Plant web page).

Exhibit D: Project Schedule outlining design submission dates to be followed per Article 1, Section 1.1.9.

THE PENNSYLVANIA STATE UNIVERSITY  
OWNER

\_\_\_\_\_  
Title

\_\_\_\_\_  
ATTEST, Secretary

(PROFESSIONAL COMPANY NAME)  
PROFESSIONAL

\_\_\_\_\_  
Title

\_\_\_\_\_  
ATTEST, Secretary

Attachments