PENNSTATE

Office of Physical Plant

The Pennsylvania State University
Physical Plant Building
University Park, PA 16802-1118

DATE: August 5, 2011

SUBJECT: GPIC HUB, Philadelphia Navy Yard,
Building 661 Retrofit

TO: Long Listed Teams

BNIM / Revision Architecture
Ewing Cole
EYP Architecture & Engineering, P.C.
FXFOWLE Architects
Kieran Timberlake
William McDonough + Partners
MS&R
Overland Partners Architects
Perkins + Will
Stantec

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 **August 24, 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. We encourage you to visit the site, review the enclosed Program Document, and discuss the project with representatives from the Greater Philadelphia Innovation Cluster (GPIC) in order to understand our goals and the major issues driving this project. Christine Knapp can make these arrangements (cmk31@psu.edu; 267-808-5627). To schedule your site visit please contact Amy Schulz at the Philadelphia Industrial Development Corporation (PIDC) at 215-218-2850 or by email at aschulz@pidc-pa.org. Please contact me if you have any process questions.

In addition to the questionnaire and Program document, a non-binding fee proposal form is enclosed 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 $26,200,000 and an FF&E budget of $2,600,000. 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 September 1, 2011 and posted to our web site. Interviews with the three short-listed firms will be held during the week of September 5, 2011. Results of the interviews will be announced at the Board of Trustees meeting on September 9, 2011 and posted to our web site.

We appreciate your cooperation and interest in preparing this material. If your firm is selected and the Board approves, 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
A. G. Horvath

QUESTIONNAIRE

GPIC HUB, Philadelphia Navy Yard
Building 661 Retrofit

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 **August 24, 2011 at Noon.**

1. Please describe your approach to this project. Please explain how you will use the principles of Integrated Project Delivery (note: a tri-party agreement will not be used for this project) to ensure that representatives from all segments of the building design and construction industry including architects, engineers, contractors, building systems developers and manufacturers, building owner, operators, and occupants, and others will participate in all aspects of the design and construction effort. Include a description of the scope of work your team will provide. Describe the process you will use to achieve the GPIC project goals.

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. This project will be closely observed and documented during design, construction, and operations by GPIC researchers. Please describe how you will work with the GPIC team to facilitate this involvement and documentation. **Provide specific examples where interaction of the design team members with ongoing research within the facilities was critical to the success of the design and construction**.

5. Consultant firms, if any, proposed for this project:

	Firm	No. of Projects Worked With Your Firm	Total Amt. Value
Structural Engineers			
Mechanical Engineers			
Electrical Engineers			

Landscape Architects
Interior Designers
Cost Estimators
Others

6. 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.

7. 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.

8. Provide evidence of the team's commitment to energy efficient design and sustainability goals. **Provide examples of the team member experience of integrating innovative energy solutions and novel or experimental systems**. The specific team member(s) involved should be noted and their role with the innovative system to approach clearly identified.

9. It is anticipated that this project will be supported during design, construction, and operations by advanced building information modeling (BIM) systems along with the state-of-the-art 3-D design visualization technology being installed at the project site. **Provide examples indicating the use of BIM or other technologies as an integrating factor on the project and furthering goals, notably energy, similar to this project**.

10. 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.

11. Graphic examples of selected projects personally done by **the lead design architect**, including brief description and completion date.

12. 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 late September, 2011.

13. List errors and omissions insurance coverage.

14. Number of personnel in present firm(s): Architects _____ Engineers _____ Interior Designers _____ Landscape Architects _____ Others _____

Which of the above are professionally registered?

GPIC ENERGY HUB HEADQUARTERS
FACILITY PROGRAM AND CONCEPTUAL COST ESTIMATE

June 10, 2011

Re: Vision
ARCHITECTURE
Green Architecture • Sustainability Consulting

Executive Summary for GPIC Hub HQ Programming Phase—
June 10, 2011

The following package provides the programmatic requirements and related estimated costs for developing a physical headquarters for the Greater Philadelphia Innovation Cluster HUB (GPIC HUB). The majority of the conceptual program has been assigned to Building 661 at the Philadelphia Navy Yard and the balance of spaces that do not require physical co-location with the core program will be assigned to a nearby site; opportunities for renovation and new construction are currently being explored for these "plus" spaces.

The following individuals served on the Programming Committee that provided the vision, programming requirements, technical input, and repeated reviews and feedback on the work in progress:

- Will Agate—Philadelphia Industrial Development Corporation
- Anthony Atchley—Pennsylvania State University
- Lesley Billhymer (observer)—University of Pennsylvania
- Deb Blythe—Pennsylvania State University
- Bruce D'Amora—IBM
- James Freihaut—Pennsylvania State University
- James Gambino—Ben Franklin Technology Partners
- Paul Hallacher—Pennsylvania State University
- Mark Allen Hughes—University of Pennsylvania
- Vivian Loftness—Carnegie Mellon University
- Muscoe Martin—University of Pennsylvania/M2 Architecture
- Edit Radone—Pennsylvania State University
- Greg Scott—Pennsylvania State University
- Richard Sweetser—Exergy Partners
- Tim Wagner—United Technologies

The professional consultant team that facilitated the programming process and developed the work products was led by:

- Jennifer Rezeli—Re:Vision Architecture
- Alexandra Vondeling—Re:Vision Architecture

To guide both the programming process as well as on-going decision-making about the facility throughout the design and construction, the Programming Committee developed the following vision for the HUB HQ:

- Ooze innovation. The work of the HUB should be visibly apparent.
- House and foster collaboration between research, training, and commercialization activities focused on clean and energy efficient processes, policies, and technologies.
- Function as a Living Laboratory to research and demonstrate over time the processes and products identified and/or developed by the HUB as scalable retrofit approaches for energy reduction that are market ready or near-market ready.
- Serve as a regional resource that makes energy efficiency sexy to building owners, researchers, policy-makers.
- Demonstrate intersection between energy efficiency and energy effectiveness (e.g. efficient spaces that are also comfortable, healthy, functional, appealing).

The specific components of the programming package include the following:

Executive Summary…… *Pages 1-2*

Disposition of Spaces, including estimated sizes and adjacencies…… *Pages 3-6*

Systems and Demonstration Technologies for Consideration…… *.Pages 7-10*

Site Requirements…….. *Page 10*

Future Activities…… *Page 10*

Disposition of "Plus" Spaces that are anticipated outside of Building 661…… *Page 11*

Programming Bubble Diagram…….. *Page 12*

Preliminary Survey Drawings Based on As-Built Documentation……. *.Pages 13-16*[1]

Elevations and Images of Existing Building……. *Pages 17-18*[2]

Site Plan Test Fit and Notes (for conceptual pricing)…… *Page 19*

Floor Plan Test Fits and Notes (for conceptual pricing)…… *Pages 20-21*

Section Test Fit and Notes (for conceptual pricing)…… *Page 22*

Conceptual Cost Estimate for Building 661 Renovation…….. *Pages 23-29*

At various points within this programming package, there are modest variations in Building 661 square footage representations that stem from different interpretations of existing drawings and/or methods of calculating of usable space. The following is a synthesis of what we believe is the best available information on space allocations:

AREA	EXISTING GROSS AREA (inc ext wall)	EXISTING NET AREA (excluding ext wall)	ASSIGNABLE[3] PROGRAM TOTALS	TEST FIT ASSIGNABLE TOTALS
High Bay (pool and gym)	17,057 SF	16,568 SF	N/A	12,514 SF
First Floor (2-story portion)	8,101 SF	7,550 SF	N/A	4,922 SF
Second Floor (2-story portion)	8,101 SF	7,550 SF	N/A	4,814 SF
Basement (usable space)	2,034 SF	1,595 SF	N/A	436 SF
TOTALS	35,293 SF	33,263 SF	25,060 SF	22,646 SF

For the test fit, the assignable program areas were reduced by about 10%; no spaces were eliminated but some were shown incrementally smaller than the programmed request. The assignable square footage programmed for the "plus" portion of the project outside of Building 661 is 7,635 SF; this SF is not included in the above table.
Cost estimating take-offs are based on interior dimensions.

1 Drawings were provided by Pennsylvania State University and have not been field verified. Visual observations of Building 661 indicate a number of modest differences between these drawings and actual conditions.
2 Drawings based on limited survey. More extensive survey work is required for design and documentation.
3 Assignable square footage does not include print/storage, restrooms, mechanicals, visitor seating, display areas, circulation, and exterior walls.

FACILITY PROGRAMMING FOR HUB HQ
(anticipated as Building 661 "plus")

HUB HQ SHARED CONFERENCE/MEETING/EDUCATION/TRAINING

#	TYPE OF SPACE	TASK REF	IMPORTANCE/RELEVANCE	# OF PEOPLE	DESCRIPTION OF SPACE, including uses and functions, qualities, technical requirements, user preferences, frequency of use	LOCATION REQUIREMENTS, including adjacency to other int/ext spaces and personnel	ESTIMATED SF NEEDS, if known	NOTES
1	Symposium / Lecture / Large Multi-Purpose	2 3 PSU	For symposiums, workshops, seminars for engineers and industry, exhibits, "technology gallery"	150	Acoustically, thermally, and spatially conducive space for symposia (primarily). Flexibility to accommodate smaller meetings/events or classes as needed. Projection capability, wi-fi, audio Seating with symposium-style tables for 150	Decent proximity to catering kitchen	2400	150 @ 16 SF = 2,400 SF
2	Collaborative Meeting Space / Conference Room / Integrated Design Meeting Space	2 3 4 5 6	Used for full team mtgs, collaborative meetings with other tasks Conference space Potential affiliate outreach For GPIC-area building projects Research could be done through observing charettes.	40	Flexible conference room with white board, projectors, audio, wired and wi-fi Pin-up space critical (old school and/or electronic vertical working surfaces) Conveniently located power strips Multi-screen concept for data and access/connections to National Labs and other partners (Task 6)	Near Project Rooms for break-out work Able to combine with Telepresence for remote collaboration	1000	40 @ 25 SF
3	Telepresence Collaboration Room / Private Meeting	2 3 6	Private room for discussions Space for PR shoots , video Used for external mtgs with member institutions, other partners,etc.	up to 18	Telepresence system, conference phone, PC linkage, screen, linkage to data bases Appropriate sound/lighting for video and interviews Six can sit around the 3 screens with another row (or two) of six behind (perhaps on a platform?)	Adjacent to Collaborative Meeting Space Consider using ICon lab for this purpose to further consolidate space	500	
4	Task Project Rooms / Conference Break Out (3)	3 4	Primarily for on-going Task work, collaboration, and partner meetings Could double as break-out spaces for larger conferences	20 x 3	Conference room with wall space designated BY TASK for displaying work in progress as well as task-specific goals Shared space for collaboration, posting of work in progress, etc Meeting/working space with displays, pinup, white-board like surfaces/projection Telecommunications equipment to track & visualize work in progress Video conferencing and recording Flexible/adjustable to accommodate larger gatherings as well as “break out” dialog and intimate discussions “Roundtable” format w/ microphone/recording speaker conf controls	Near conference for use as break-out Near task offices In an activated space	1500	20 @ 25 SF x 3
5	Workforce Training / Partner Education	5	Workforce training Task-initiated classes	25	Seminar style classroom, with secure space for laptop carts Laptops for each student; instructor with laptop or PC attached to LCD projector	Consider combining with I-Con lab	625	25 @ 25 SF
6	Conference Storage				For additional chairs, tables, etc.		500	
7	Impromptu "open" meeting space	2	To foster spontaneous collaboration		Flexible, comfortable, picturesque	Provide some in office areas for informal meetings		Included in grossing factor Add small mtg rm if can
							6525	

FACILITY PROGRAMMING FOR HUB HQ
(anticipated as Building 661 "plus")

HUB HQ RESEARCH LABS

#	TYPE OF SPACE	TASK REF	IMPORTANCE/RELEVANCE	# OF PEOPLE	DESCRIPTION OF SPACE, including uses and functions, qualities, technical requirements, user preferences, frequency of use	LOCATION REQUIREMENTS, including adjacency to other int/ext spaces and personnel	ESTIMATED SF NEEDS, if known	NOTES
8	Experimental Living Lab (ICon)	2 6	Critical to model validation, verification, calibration Bring design plans to life Assist with integration of A&E	TBD	Virtual Immersive Space with instrumentation, 1Gb networking – wired and wi-fi House display walls, caves, workstations, small cluster servers. Large, three-screen immersive display system. Space MAY need to accommodate (TBD): lecture or full scale visualization of models on the display system, a large meeting with conference table, interactive team meetings/seminars (with mobile tables) where the participants require tables. The space must be >30' wide for the screen. Special HVAC/electrical reqs for projection system and computers. Dimming capability.		2400	40 x 60
9	Simulation / Modeling Lab	4	For researchers to compare and evaluate each other's work	TBD	Video displays and real-time visualization What kind of work stations? Desktops? Laptops? Similar to computational labs at some aerospace labs	Collaboration w/ Tasks 2, 3, and 6	750	
10	Data Aquistion and Analysis Lab	3	To enable analysis of data from HUB HQ & member labs	4	Computer workstations, wall space for displaying work in progress, servers for storing data, display screen for group viewing		200	4 @ 50 sf
11	Control System Developm't & Testing Lab	3	Promote collaboration on integrated controls development	6	Computer workstations, wall space for displaying work in progress, platforms for running control algorithms		300	6 @ 50 sf
12	Flex Research Labs (6)	3	Accommodate changing research: integrated HVAC/Façade research in yr 1 & lighting/ventil in yr 2	6	Labs should anticipate/accommodate changing research from year to year, within the umbrella of integrated systems research. Separate rooms, but ability to combine for larger-scale research efforts	Some high-bay space needed	6000	1000 sf x 6
13	Storage				For material coming and going; includes loading dock	Exterior access for loading	500	
							10150	

HUB HQ DEDICATED TASK OFFICES/SPACES

#	POSITION	TASK REF	IMPORTANCE/RELEVANCE	# OF PEOPLE	DESCRIPTION OF SPACE, including uses and functions, qualities, technical requirements, user preferences, frequency of use	LOCATION REQUIREMENTS, including adjacency to other int/ext spaces and personnel	ESTIMATED SF NEEDS, if known	NOTES
14	FT Researcher	2	To perform computer modeling and simulation	1	Private Office: Typical workspace--desk, chair, phone, internet, computer, visitor seat	Integration with Task 3 for model validation, verification, calibration;Access to computational resources (desktops to supercomputers)	120	
15	FT Post-Docs	2	To perform computer modeling and simulation	2	Private Offices: Typical workspace--desk, chair, phone, internet, computer, visitor seat		240	
16	Rotating Grad Students, Post Doc or Faculty	2	To perform computer modeling and simulation	2	Cubicles-open		200	
17	FT Director-Level	3	Task 3 Leadership	2	Private Office: Typical workspace--desk, chair, phone, internet, computer, visitor seat	Near Director of Operations Office	300	2 @ 150
18	FT Researchers	3		13	Cubicles in multiple areas (e.g., controls, data acquisition)	Near, or part of, research areas	1040	13 @ 80 SF

FACILITY PROGRAMMING FOR HUB HQ
(anticipated as Building 661 "plus")

HUB HQ DEDICATED TASK OFFICES/SPACES, CONTINUED

#	POSITION	TASK REF	IMPORTANCE/RELEVANCE	# OF PEOPLE	DESCRIPTION OF SPACE, including uses and functions, qualities, technical requirements, user preferences, frequency of use	LOCATION REQUIREMENTS, including adjacency to other int/ext spaces and personnel	ESTIMATED SF NEEDS, if known	NOTES
19	PT Researchers	3		13	Cubicles in multiple areas (e.g., controls, data acquisition)	Near, or part of, research areas	1040	13 @ 80 SF
20	Full-time UTC	4		2	Private Offices: Typical workspace--desk, chair, phone, internet, computer, visitor seat	Near other offices, project rm	240	2 @ 120
21	Part-time PSU students	4		2	Cubicles-open	Near other offices, project rm	160	2 @ 80
22	Full-time UPenn offices	4		3	Private Offices: Typical workspace--desk, chair, phone, internet, computer, visitor seat	Near other offices, project rm	360	3 @ 120
23	Admin support for UPenn	4		1	Cubicle-open	Near other offices, project rm	80	
24	Full-time Drexel	4		1	Private Office: Typical workspace--desk, chair, phone, internet, computer, visitor seat	Near other offices, project rm	120	
25	PT Drexel students	4		2	Private Offices: Typical workspace--desk, chair, phone, internet, computer, visitor seat	Near other offices, project rm	200	
26	FT Assistant Director	5		1	Private Office: Typical workspace--desk, chair, phone, internet, computer, visitor seat. Interconnected with remote constituents with latest voice, data, and video	Located apart from meeting and classroom areas	150	
27	FT Admin Assistant	5		1	Typical workspace: desk, chair, phone, internet, computer	Located apart from meeting and classroom areas	120	
28	Flex Office	6		1	For task specific program, workshop info, materials		120	
29	HQ Director of Ops			1	Typical private office for leadership positions with room for meetings w/ 2 guests	Task 3 requested proximity	175	
30	Admin Assistant for Dir			1	Typical workspace: desk, chair, phone, internet, computer		120	
							4785	

HUB HQ SUPPORT SPACES

#	TYPE OF SPACE	TASK REF	IMPORTANCE/RELEVANCE	# OF PEOPLE	DESCRIPTION OF SPACE, including uses and functions, qualities, technical requirements, user preferences, frequency of use	LOCATION REQUIREMENTS, including adjacency to other int/ext spaces and personnel	ESTIMATED SF NEEDS, if known	NOTES
31	Lobby	2 3	Welcome, security, ooze innovation Doubles as visitor demo area; demo is key to HUB mission	25	Creates visual impact Large display screen and/or interactive kiosks in or near lobby to accommodate up to 25 Could be an area for rotating industry products/innovations Includes area for demo of technologies/integration of technologies		1200	
32	Visitor Seating Area	4			Flexible, comfortable, picturesque	Near visitor restrooms		Included in grossing factor
33	Display/Demo				In addition to dedicated space in the lobby and symposium space, display / demo is intended to be distributed throughout the HQ			Included in grossing factor
34	Intern/Visitor Flex	5 6		25	Large room with "library-type carrels." Each would have task lighting, spot for books, outlet for a laptop, wireless connectivity. It would be used to house long-term visitors, give them space.That could be students or anyone else.		1250	25 @ 50 sf

FACILITY PROGRAMMING FOR HUB HQ
(anticipated as Building 661 "plus")

HUB HQ SUPPORT SPACES

#	TYPE OF SPACE	TASK REF	IMPORTANCE/RELEVANCE	# OF PEOPLE	DESCRIPTION OF SPACE, including uses and functions, qualities, technical requirements, user preferences, frequency of use	LOCATION REQUIREMENTS, including adjacency to other int/ext spaces and personnel	ESTIMATED SF NEEDS, if known	NOTES
35	Lunchroom/Café Space			30	Pleasant space for gathering/interaction Tables, chairs Typical lunchroom amenities: refrigeration, warming capability, sink	For optimal efficiency, adjacent to catering kitchen or with pass-through	500	30 @15sf (allows for tables and chairs)
36	"Online Repository": Server room with computers/server racks	4			Repository will be housed on a computer server. Space requirements are TBD (Jeff Barg lead). No people, just computers, a conditioned room. Also needs protection from water and electricity source.	There is a limit on distance between displays and servers. Look to locate near intensive computing spaces.	400	20 x 20--made generous for cluster computing
37	Catering / Food Management Area	6			Small kitchen area, wet sink, refrigeration, table space for food /drink set ups	Adjacent to conference spaces and lunch room	250	10 x 25
38	Print/Storage Room							Included in grossing factor
39	Restrooms	All				Should include showers		Included in grossing factor
40	Secure Spaces/Storage				Consideration of which areas or materials/samples, etc need to be able to be secured			Included in grossing factor
							3600	

TOTALS	**TOTALS**	**EXISTING COMPS**
Sub-Total: Estimated Assignable SF	25060	22919
Grossing Factor (35% total for walls, circulation, mechanical, elevators, restrooms, janitorial, additional storage, etc)	13494	12342
TOTAL	38554	35261

FACILITY PROGRAMMING FOR HUB HQ
(anticipated as Building 661 "plus")

HUB HQ RECOMMENDED DEMONSTRATIONS AND/OR TECHNOLOGIES

#	TYPE OF DEMONSTRATION OR TECHNOLOGY	TASK REF	IMPORTANCE/RELEVANCE	POSSIBLE LOCATIONS FOR INTEGRATION	SPATIAL REQS	NOTES
41	Model Analysis Display	2	Shows predicted versus actual performance as captured by sensor networks and instrumentation for research and teaching purposes	Data Analysis Lab noted above		
42	Sophisticated Measurement and Verification Tools	2	Needed to verify prediction and measurement tools, as well as inform operations. Continuous validation of tools and results through real building performance.			
43	State of the art networking (1Gmin) and robust wireless infrastructure	2	To support RDD&D efforts			
44	Local building weather station	2 PSU	Live collection of data so models can be fine-tuned and adapted based on weather and occupancy results			
45	Dedicated outdoor air system/Independent dehumidification	3	Efficient AC for Zone 4a	Space for unit outside plus air distribution inside		
46	In-duct ultraviolet germicidal irradiation (UVGI)	3/PSU	Cooling coil maintenance and air disinfection			Either a chilled water coil or a DX system could be studied Add'l info attached
47	Demand-controlled ventilation (DCV)	3/PSU	most interesting type is one that has multiple spaces and recirculation			Add'l info attached
48	CO2 Sensors	3/PSU	Works in conjunction with DCV research			Add'l info attached
49	Integrated phase change materials such as ceiling systems being developed by Armstrong	3/PSU				Add'l info attached
50	Active thermal storage, hot and cool	3/PSU				Add'l info attached
51	Heat pumps, central, distributed, heat recovery, ground coupled	3/PSU				Add'l info attached
52	Variety of advanced glazing technologies	3/PSU				Add'l info attached
53	Smart insulation	3/UPitt				Add'l info attached
54	Advanced cooled data centers	3/UPitt				Add'l info attached
55	Aeroelastic wind energy harvest	3/UPitt				Add'l info attached
56	Co-generation	3/UPitt				Add'l info attached
57	Wireless, self-powered sensors	3/UPitt				There are several currently-available units Add'l info attached
58	Harvesting power on-site for other applications	3/UPitt				Would be small amounts, typ from human movem't Add'l info attached
59	Liquid Desiccant Air Conditioning (LDAC)	3/MSU				Three components: conditioner, regenerator, heat exchanger Add'l info attached
60	Heat Recovery Ventilation	3/MSU				Add'l info attached

FACILITY PROGRAMMING FOR HUB HQ
(anticipated as Building 661 "plus")

HUB HQ RECOMMENDED DEMONSTRATIONS AND/OR TECHNOLOGIES (CONTINUED)

#	TYPE OF DEMONSTRATION OR TECHNOLOGY	TASK REF	IMPORTANCE/RELEVANCE	POSSIBLE LOCATIONS FOR INTEGRATION	SPATIAL REQS	NOTES
61	Pressurized Underfloor Air Distribution Systems	3/MSU				Add'l info attached
62	VAV Systems	3/MSU				Add'l info attached
63	Graphic Communication Program	4	Showing site-energy use, supply statistics (% clean/renewable) Office and space level assessments on energy use by location Flexible graphic program that describes the way the building works, present technology, different ways people can use the HUB, dispays make, manufacturers, energy use, etc, etc (I am sure we can come up with a more robust list of what to communicate) Perhaps interactive with smart phones, etc	Opportunity to "Ooze Innovation" by locating in publicly visible areas	Visually accessible info-eye–level	
64	Lighting Controls	4	The goal is to have the flexibility to evaluate the effects of automated control on occupant behavior as well as the effects of occupant control over light intensity and placement with respect to energy savings and occupant well-being and productivity. Ability to manipulate lighting location, intensity, and user control interfaces. User-adjustable or remotely controlled lighting (RFID controlled?)	IN THE CORE SPACES. USE OWN OFFICE SPACE AS SUBJECT AREA.		
65	Reconfigurable Lighting	4	For example, we might consider installing all lighting with twist-lock quick connects, rather than hardwiring. Or we may create electrical busses for the lighting to facilitate changes. We may consider assigning a digital address to every luminaire, such as an IP address, to allow for digital control.			
66	Daylighting Controls	4	The goal is to establish a test area that would allow for studies designed to evaluate the effect of occupant control over daylighting, energy savings using an automated system controlling daylighting, as well as the response of occupants to manipulations in daylighting out of their control. Again the overarching goal is to determine how these interfaces and personalized control translate to energy savings through a reduction in artificial lighting and/or a reduction in heating/cooling as well as the impact on human health and productivity			

FACILITY PROGRAMMING FOR HUB HQ
(anticipated as Building 661 "plus")

HUB HQ RECOMMENDED DEMONSTRATIONS AND/OR TECHNOLOGIES, CONTINUED

#	TYPE OF DEMONSTRATION OR TECHNOLOGY	TASK REF	IMPORTANCE/RELEVANCE	POSSIBLE LOCATIONS FOR INTEGRATION	SPATIAL REQS	NOTES
67	Thermal Comfort Test Area/User Controls	4	Ability to manipulate indoor air temperature, humidity, flow rate, and location of air supply and return. The goal is to establish a test area that would allow for studies designed to evaluate the effect of occupant control over room temperature, air supply flow rate, and location of supply relative to occupant. The test area should be designed with flexibility to allow for studies that include automated control, individualized control through occupant interfaces, and individualized control through biofeedback based on skin surface temperature and/or humidity with the overarching goal of determining how these interfaces and personalized control translate to energy and cost savings. User-adjustable or remote control HVAC (RFID?)	IN THE CORE SPACES. USE OWN OFFICE SPACE AS SUBJECT AREA.		
68	Adaptable Workstations	4	Ability to manipulate work stations, wall heights, surface finishes To evaluate effects on energy usage through the impact on daylighting, artificial lighting, indoor air quality, changes in indoor air conditioning needs or occupant perceived air conditioning needs, and consequently changes in the occupant's energy usage, as well as human health and productivity.			
69	Metering at workzone level	4	An electrical system metered by zones enabling occupant energy usage to be monitored at the workzone level.			
70	Acoustical control--swappable surfaces	4	For testing			
71	Highly reconfigurable surface finishes	4	For testing			
72	Satellite links	4	For broadcasting open events			
73	Access control and video surveillance	4	Site information display should provide both a current occupant description (e.g. who is in the building) as well as planned visitors and events. Site should have access control and video surveillance capability that both serves to secure the facility, its potential for VVIP's to visit, and that this system could serve as a useful resource for occupancy based energy research and performance assessments. Smart personnel badges, real-time tracking, and access control would be desired. Video surveillance may also be a capability for web-cams' and other means for external observing of the Hub's activities.			
74	Operable windows	4	Fresh air access, as part of the energy program of the buildng. Operability for a normal-sized person.			
75	Shared on-line workspace for sharing of ideas, collaboration, and data management	6	Visual demonstration of Web/ Cloud based Business valuation model Multiple Screens ,wireless hookup access to database			
76	Solar PV	PSU	Roof mounted or ground mounted			
77	Solar cooling	PSU	Need to advance Conc. Solar with Adsorbtion/ Absorption chillers			
78	Building integrated wind	PSU	Need to advance building integrated wind and advance commercialization of small scale wind			
79	Energy storage	PSU	Critical development topic of Navy Yard and emerging partnerships International Battery is leading current collaborations			

FACILITY PROGRAMMING FOR HUB HQ
(anticipated as Building 661 "plus")

HUB HQ RECOMMENDED DEMONSTRATIONS AND/OR TECHNOLOGIES, CONTINUED

#	TYPE OF DEMONSTRATION OR TECHNOLOGY	TASK REF	IMPORTANCE/RELEVANCE	POSSIBLE LOCATIONS FOR INTEGRATION	SPATIAL REQS	NOTES
80	Shared spaces to utilize building systems research equipment for education and training activity	PSU	Thoughtful layouts of building systems, in particular solar, wind, energy storage, ChP systems so they are visible and accessible for technical education program 10-15 people			
81	Modular, Removable Wall Sections	Rick w/ Bayer	Turn one or more exterior walls of the high bay areas into modular, removable sections to pop in and out and do research on wall sections. This might need a site code variance because building enclosure types could be other construction type beside the present construction. I recommend that this subject be brought to a greater level of discussion and understanding. I think this is pretty important.	High Bay Area		
82	Façade / Fenestration Control					
83	Laboratory Refrigerator and/or minus 80 freezer	4	For biological samples	Near Project Room / Task 4		
84	Flexible and modular HVAC and power/data/voice infrastructures that can support changing space requirements	CMU	A lab must be able to become a meeting room and vice versa, open plan become closed offices, larger workstations become small, powered and conditioned displays appear and disappear in circulation and gallery spaces, etc.			
85	Thermal energy storage, water, ice, phase change, ground sourced	CMU				

HUB HQ SITE REQUIREMENTS

#	OUTDOOR FEATURES	TASK REF	NOTES
86	Covered bike racks	4 6	
87	Outdoor gathering space	4	
88	Charging stations	6	Various types
89	Parking	PSU	Solar / battery / EV charging integration; dedicated, preferred parking. 1 per 1000 sf? 30 spaces
90	Overflow Parking	6	Essential. There is a currently a parking crunch at the Navy Yard when there is an event.
91	Loading Dock	7	For delivery of large materials/assemblies/equipment

HUB HQ FUTURE ACTIVITIES

#	FUTURE ACTIVITIES	TASK REF	NOTES
92	GPIC /National lab Integration Center for EEBs	6	Multiple Screens, input /presentations capability from a variety of databases , Telepresence, full integration of EEB solutions into the GPIC Business Model Valuation System , which is integrated into the blg retrofit modeling tool , andd emo units in the region
93	Energy storage and advanced building power systems	PSU	Energy storage and advanced building power systems will grow dramatically in the next 5 years. Building should be a demonstration site for the E-Merge Alliance and low voltage dc power use coupled with distributed energy storage and PV power generation. This is a critical piece of reducing energy use, and will be piloted on a residential scale at GridStar facility built near Building 101.

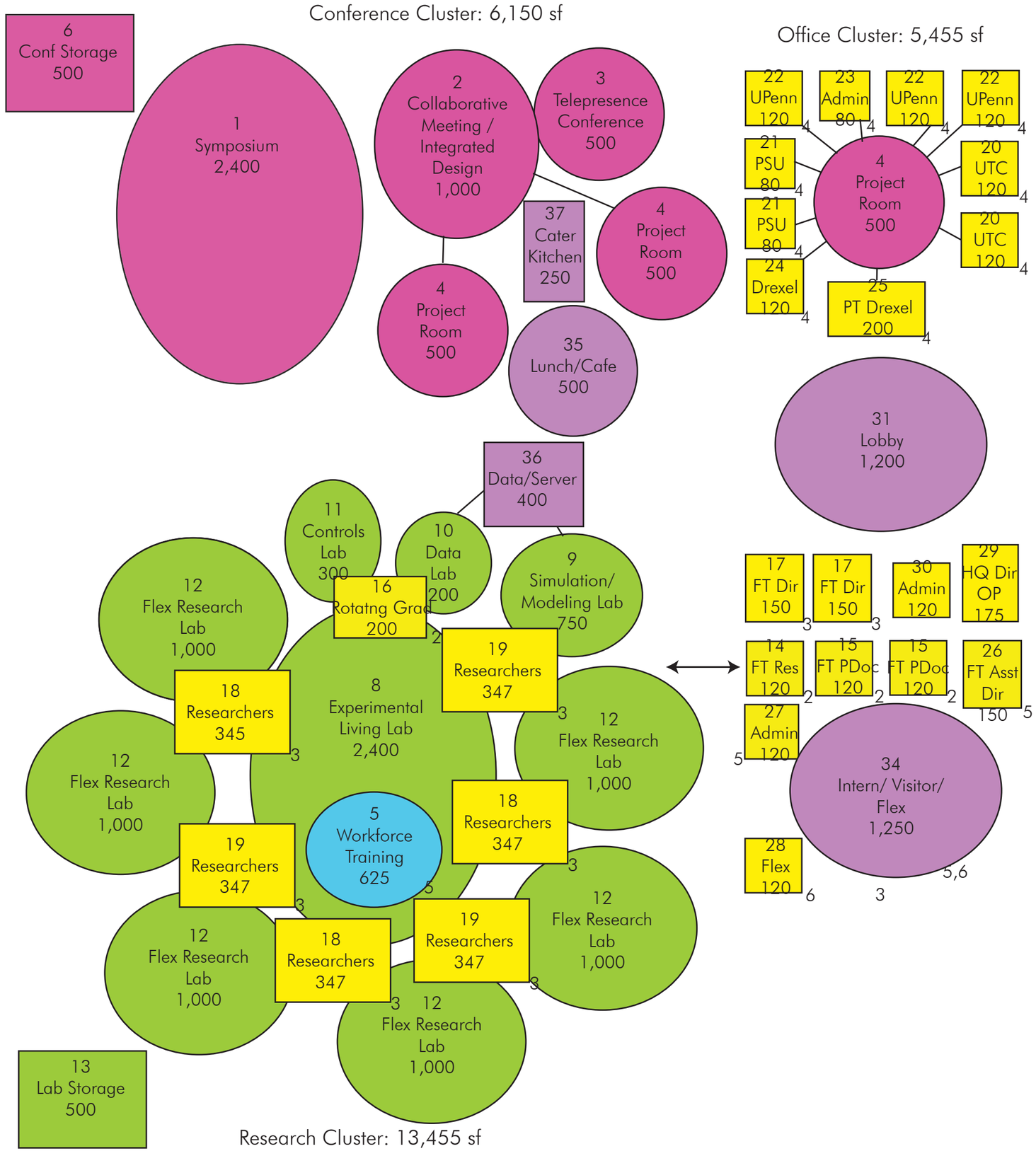
FACILITY PROGRAMMING FOR HUB HQ
(anticipated as Building 661 "plus")

HUB HQ CLASSROOM SPACE--IN ADDITION TO BUILDING 661

#	TYPE OF SPACE	TASK REF	IMPORTANCE/RELEVANCE	# OF PEOPLE	DESCRIPTION OF SPACE, including uses and functions, qualities, technical requirements, user preferences, frequency of use	LOCATION REQUIREMENTS, including adjacency to other int/ext spaces and personnel	ESTIMATED SF NEEDS, if known	NOTES
94	Classrooom(s)	2 5 PSU	Training for GPIC developed tools, processes, technology Workforce development	50 x 2	Desks, whiteboard, projector, audio, wired and wi-fi Ethernet, accessible power Lecture style Possible inclusion of some tech classroom specifications.		1600	50 @ 16 SF = 800 SF X2 = 1,600 SF
95	Distance Learning Classroom	PSU		40	Seminar style, with full distance ed. Tech classroom spec, including video teleconferencing.		1000	40 @ 25 SF = 1,000 SF
96	Solar/GridStar Tech Classroom	PSU		30	Seminar style, with space for technical training equipment carts purchased through GridStar and Solar center		750	30 @ 25 SF = 750 SF
97	Technology Classrooms	PSU		40 x 2	(2) 40-seat instructional technology classrooms, seminar style Classrooms configured with computer projection, projection screen, fully-integrated podium, wireless access, SmartBoard.		2000	40 @ 25 SF = 1000 SF X2 = 2,000 SF
98	Storage	PSU			Room to store mobile training and education equipment carts (15), tables and chairs, tech	Integrated with classrooms and multi-function space	800	
99	Center Directors	PSU		3	Typical offices for leadership positions with room for meetings with 2 guests		525	3@ 175 = 525 SF
100	Administrative Support	PSU		6	Spaces for individuals that support scheduling and use of classrooms, Distance Ed technology, and other administrative tasks.	In proximity to GPIC Ed. And Workforce leadership	720	6 @120 = 720 SF
101	Instructor Prep	PSU		4	Space for guest instructors to prepare (cubical)	Proximity to classroom and admin support	240	4 cubicles @ 60 = 240 SF
							7635	

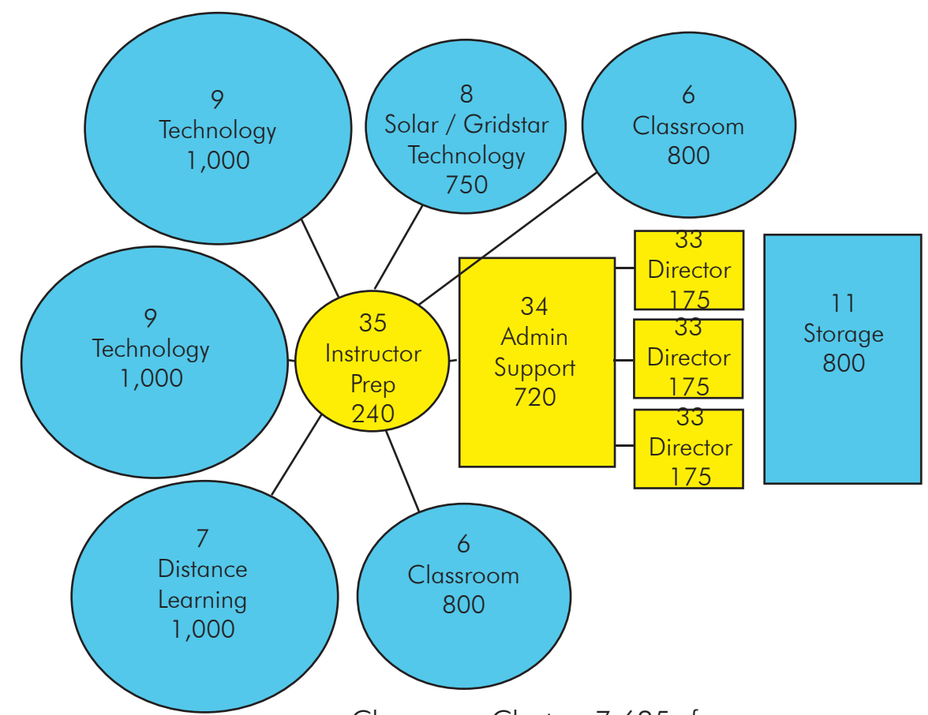
GPIC Hub HQ Building 661: Program Bubble Diagram

Prepared by *ReVision Architecture* 4.26.11

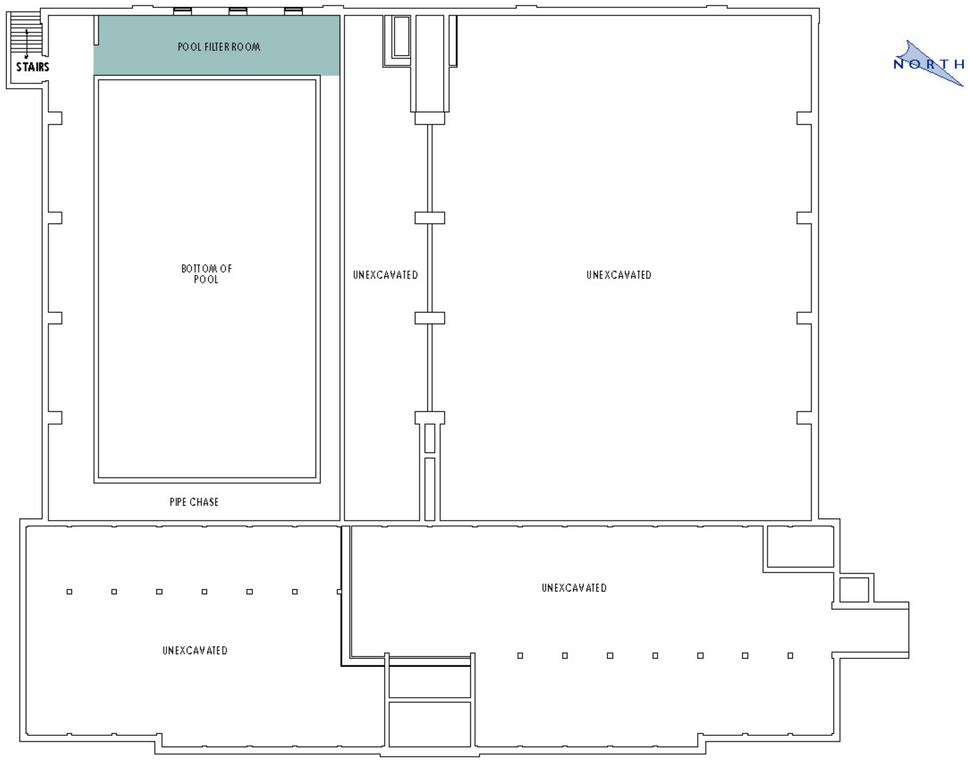


Legend

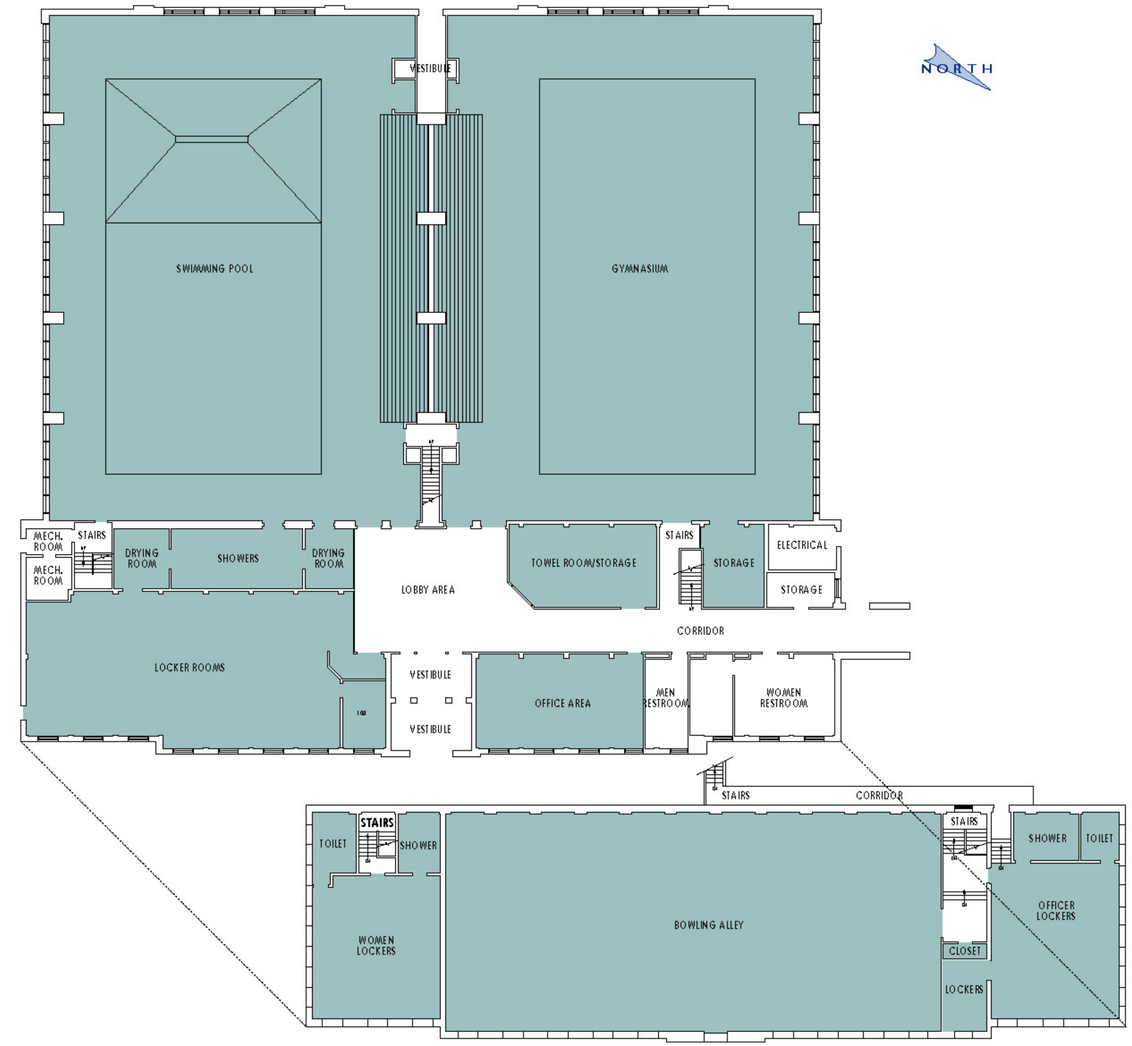
- 26 UPenn 120 4 — Program Reference Number; Room Ref; SF Area; Task Ref
- Office Spaces
- Multi-Occupant / Gathering Spaces
- Shared Conference / Meeting
- Classroom Space
- Research Space
- Dedicated Task / Office Spaces
- Support Spaces



Classroom Cluster: 7,635 sf
Part of "Plus" Space



A Basement Plan
not to scale



B First Floor & Second Floor Plans
not to scale


EAST FACADE

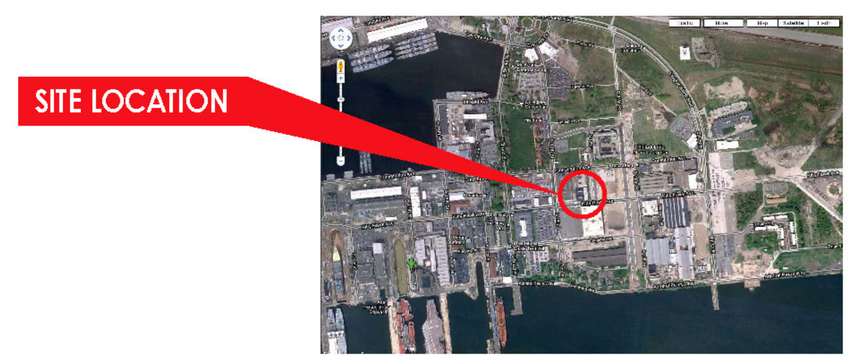

S.W. CORNER

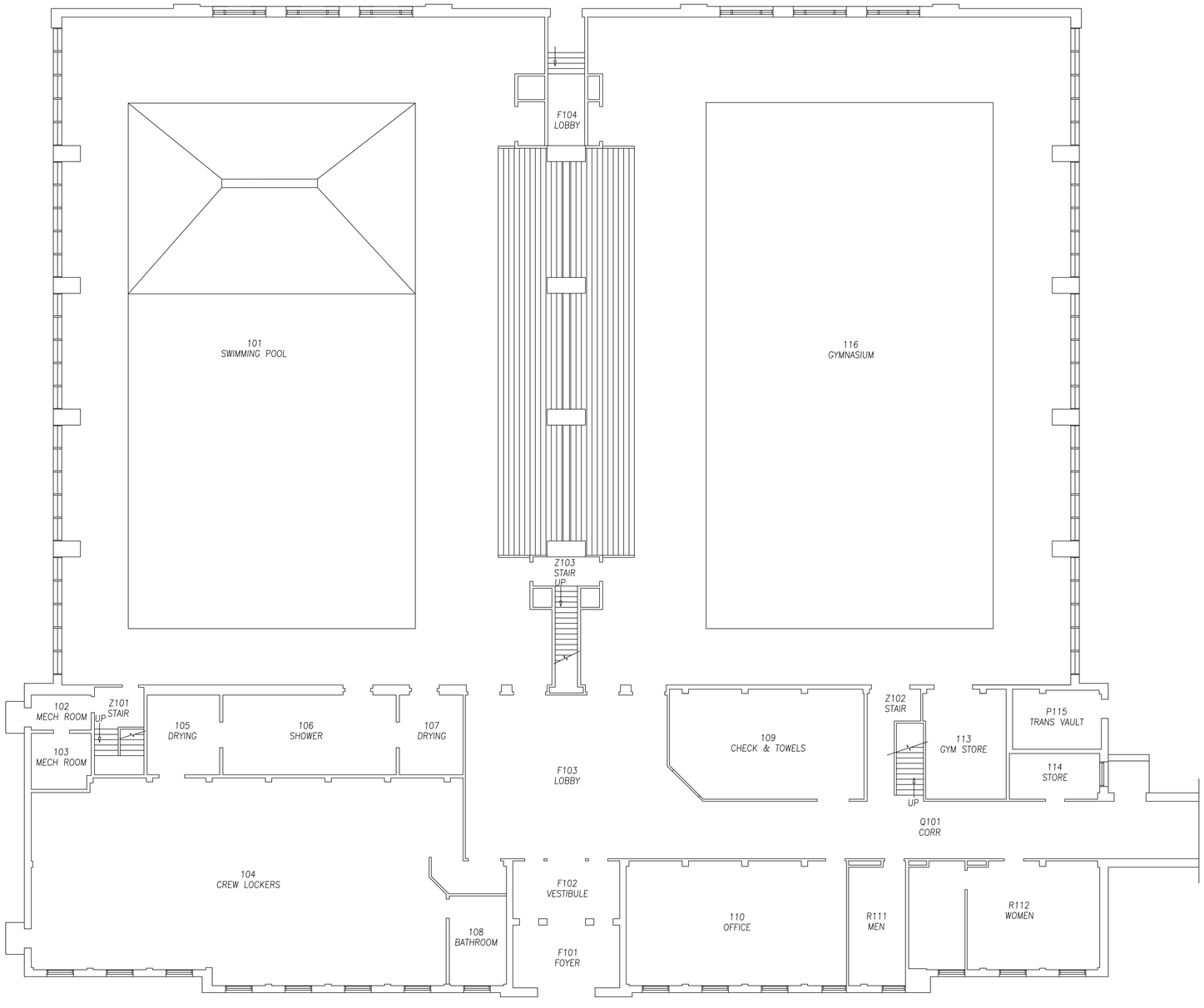

GYM INTERIOR


ROOF & PARKING LOT

BUILDING 661

Function: Field House/Gymnasium
Gross Sqft: 38,111 sf
Assign Sqft: 28,010 sf
Nonassign Sqft: 5,912 sf
Year Built: 1942





NAVY YARD BLDG NO. 661

PSU BUILDING NAME

FIRST FLOOR PLAN

BUILDING FLOOR LEVEL

PHILADELPHIA, PA

PSU CAMPUS LOCATION

PENNSTATE

FACILITIES RESOURCES AND PLANNING

THE PENNSYLVANIA STATE UNIVERSITY
BENEDICT HOUSE
UNIVERSITY PARK, PA 16802

OFFICE: 814.865.1595 FAX: 814.865.1610 www.facilities.psu.edu

SCALE 0 2' 4' 6' 8' 16'

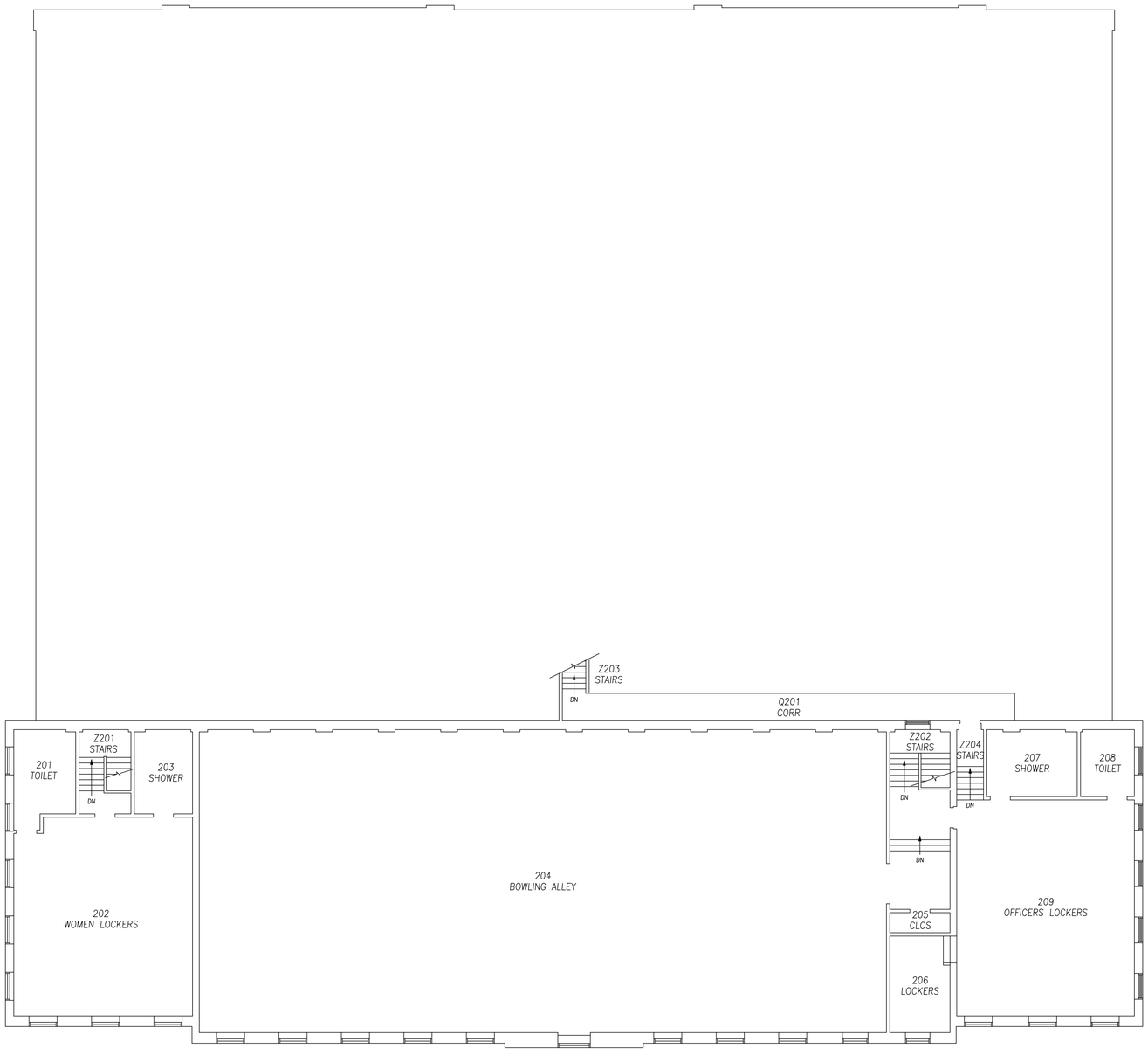
12/14/10
CREATION DATE REVISED DATE

Campus block plans are for referential use only. Drawings are not to be used for architectural or engineering purposes.

3001-000
BUILDING NUMBER

2 OF 3
SHEET NUMBER

1
FLOOR LEVEL



NAVY YARD BLDG NO. 661

PSU BUILDING NAME

SECOND FLOOR PLAN

BUILDING FLOOR LEVEL

PHILADELPHIA, PA

PSU CAMPUS LOCATION

PENNSTATE

FACILITIES RESOURCES AND PLANNING

THE PENNSYLVANIA STATE UNIVERSITY
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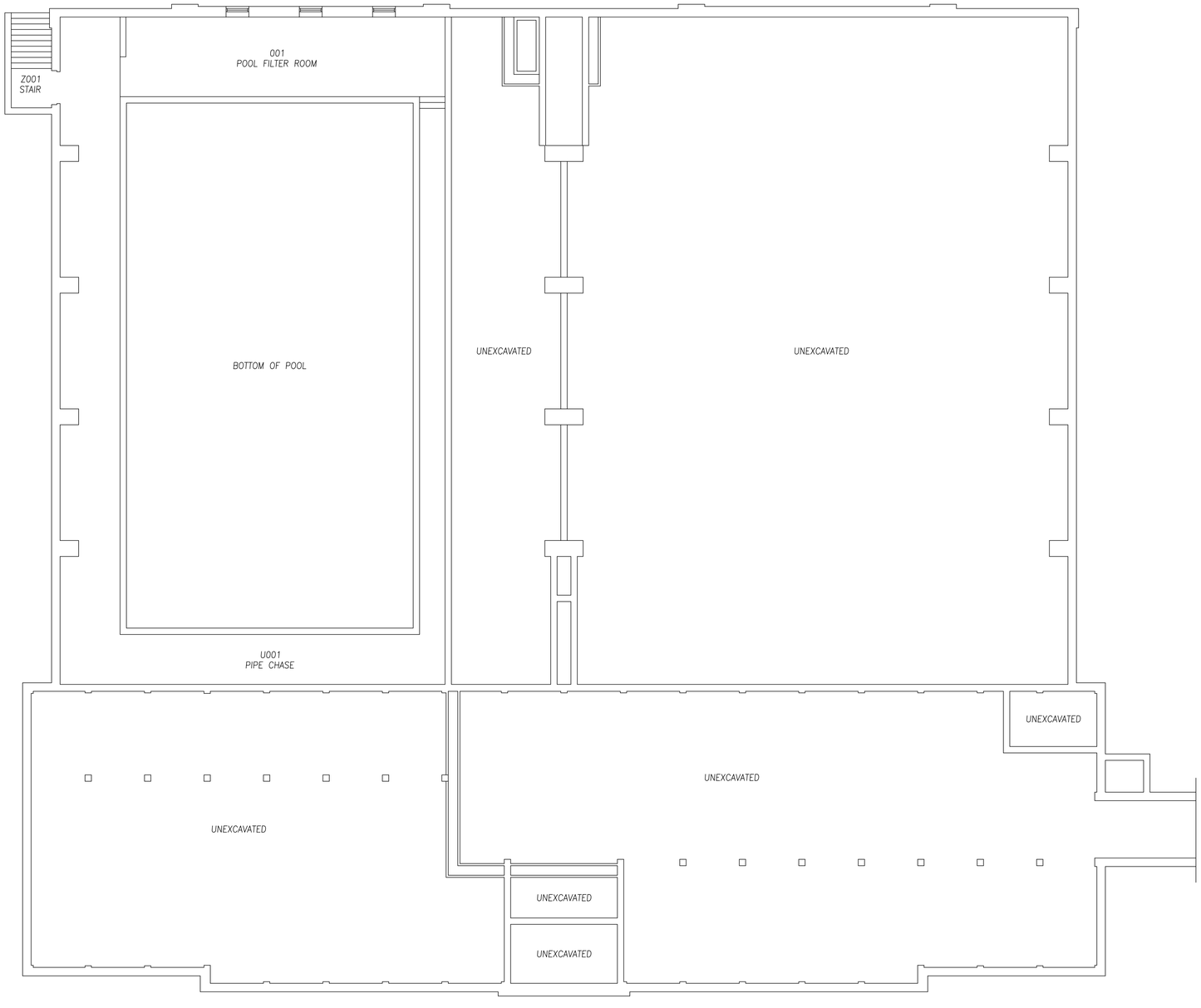
3001-000
BUILDING NUMBER

3 OF 3
SHEET NUMBER

2
FLOOR LEVEL



NAVY YARD BLDG NO. 661

PSU BUILDING NAME

BASEMENT FLOOR PLAN

BUILDING FLOOR LEVEL

PHILADELPHIA, PA

PSU CAMPUS LOCATION

PENNSTATE

FACILITIES RESOURCES AND PLANNING

THE PENNSYLVANIA STATE UNIVERSITY
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SCALE 0 2' 4' 6' 8' 16'

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CREATION DATE REVISED DATE

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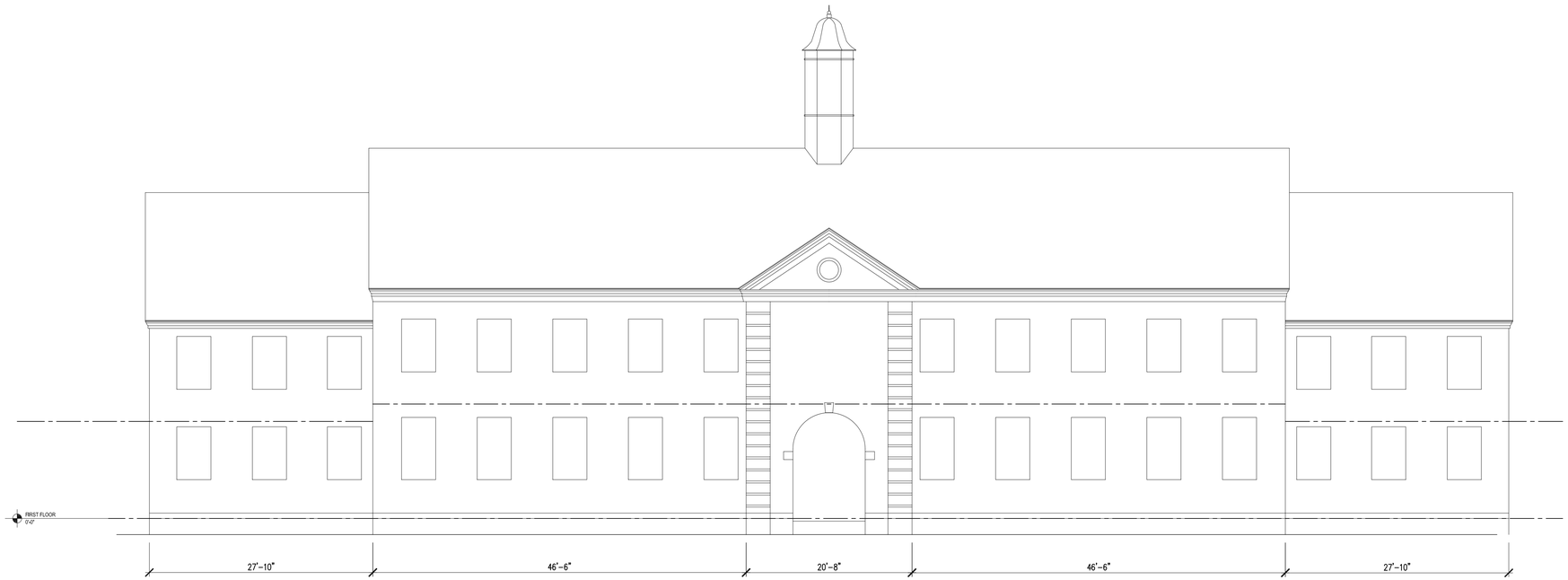
3001-000
BUILDING NUMBER

1 OF 3
SHEET NUMBER

B
FLOOR LEVEL



EAST ELEVATION

0 2' 4' 8' 16'

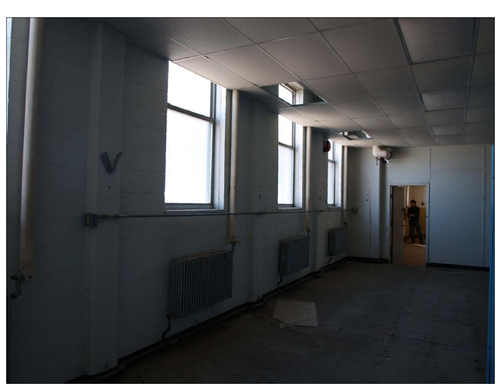
NORTH ELEVATION

NORTH AND WEST ELEVATIONS

SOUTH ELEVATION

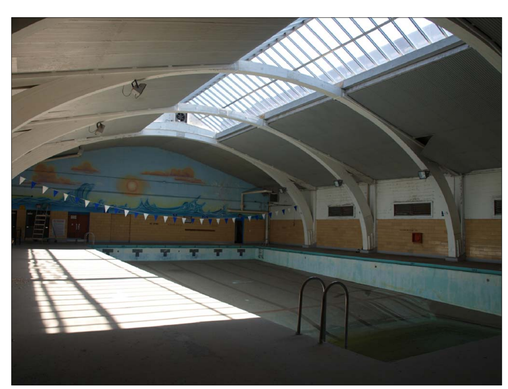
EAST ELEVATION

AERIAL VIEW

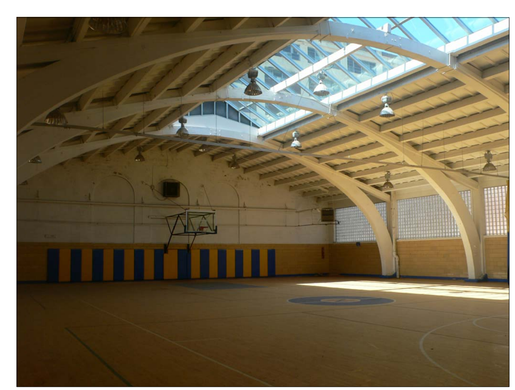


UPPER FLOOR LOCKER ROOMS

UPPER FLOOR STUDIO



POOL



GYM

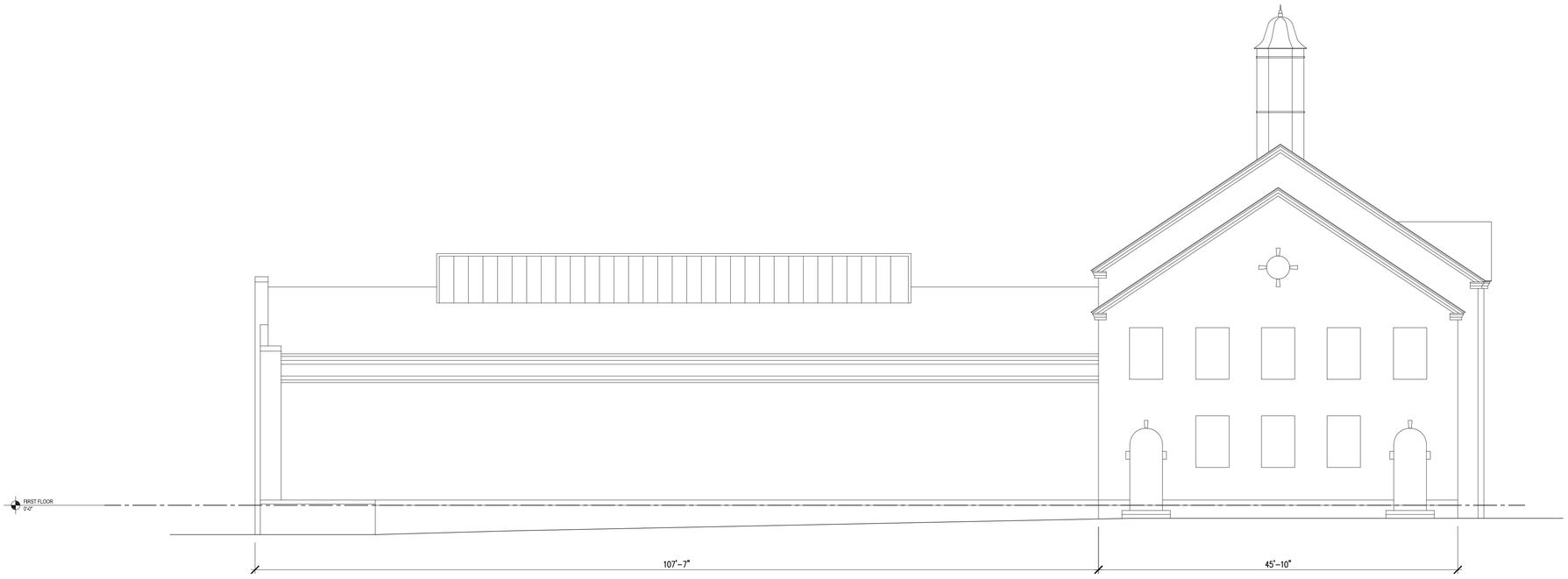
GPIC HUB HQ BUILDING 661
TEST FIT FOR CONCEPTUAL PRICING

EXISTING CONDITIONS

1

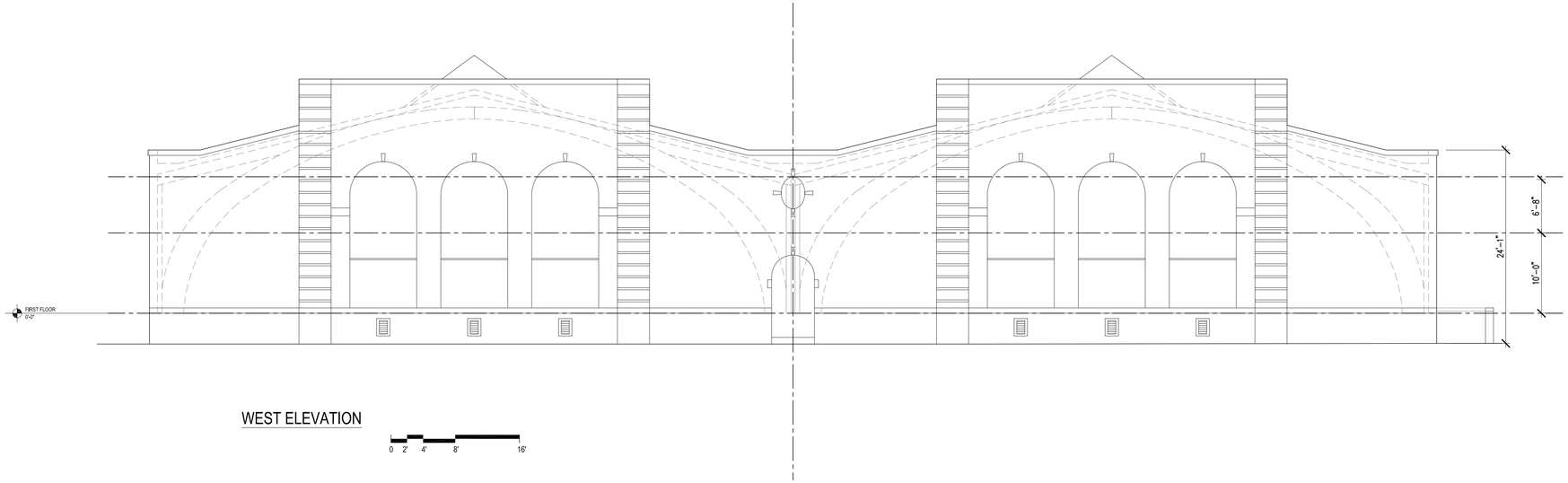
1/8" = 1'-0"
5.9.11

prepared by ReVision Architecture



SOUTH ELEVATION

0 2' 4' 8' 16'



WEST ELEVATION

0 2' 4' 8' 16'

GPIC HUB HQ BUILDING 661
TEST FIT FOR CONCEPTUAL PRICING

EXISTING CONDTIONS

2

1/8" = 1'-0"
5.9.11

prepared by ReVision Architecture

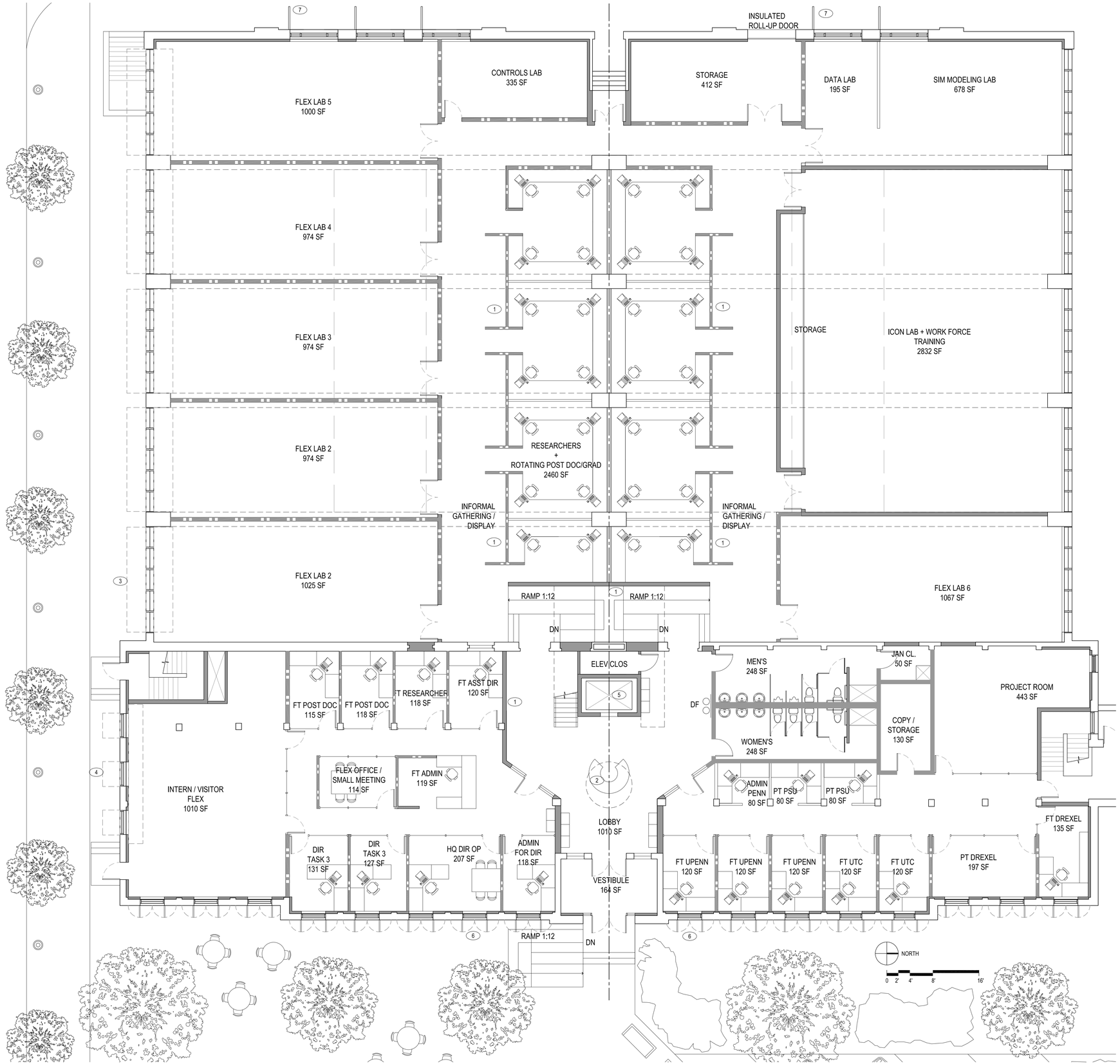
GPIC HUB HQ BUILDING 661
TEST FIT FOR CONCEPTUAL PRICING

SITE PLAN

3

1/16" = 1'-0"
5.9.11

prepared by ReVision Architecture



KEY NOTES

1. INTERACTIVE DISPLAYS
2. INFORMATION / SECURITY KIOSK
3. VARYING TEST BAY WALL ASSEMBLIES W/ OPERABLE WINDOWS, TRICKLE VENTS, EXTERIOR SOLAR SHADING, AND INTERIOR LIGHT SHELVES
4. RETRACTABLE AWNING WITH INTERIOR LIGHT SHELF, TYPICAL AT SOUTH ELEVATION OF 2 STORY STRUCTURE
5. ECO-ELEVATOR (EG KONE)
6. COMBINED AUTOMATED SOLAR SHADE/SHUTTER AND THERMAL NIGHT SHADE, TYPICAL AT EAST ELEVATION.
7. VERTICAL FIN, SOLAR SHADING AT WEST ELEVATION

LEGEND

(N) NEW
(E) EXISTING
(E) WALL
(N) PERMENANT WALL
(N) DEMOUNTABLE WALL (EG WWW.SMARTWALLS.COM)

GENERAL NOTES

LIGHTING

1. INDIRECT-DIRECT PENDULAR LIGHTING FOR ALL OFFICE AREAS, CLASSROOMS, MEETING ROOMS, LABS, PROJECT ROOMS
2. TASK LIGHTS AT ALL WORKSTATIONS
3. AMBIENT AND DISPLAY LIGHTING FOR EXHIBIT/EDUCATIONAL SPACES
4. FULL SUITE OF SENSORS AND A LIGHTING CONTROL SYSTEM TO SUPPORT: TIME SCHEDULING, OCCUPANCY SENSING, DAYLIGHT HARVESTING, TASK TUNING, OCCUPANCY CONTROLS.

HEATING AND COOLING

5. AT HIGH BAY: HEATING VIA RADIANT FLOORS - HEATING SOURCE ON NORTH SIDE SHALL BE SOLAR THERMAL WITH SOURCE ON SOUTH SIDE FROM GSHP. COOLING VIA CHILLED BEAMS. WATER COOLED BY A CHILLER.
6. AT MAIN FLOOR OF OFFICES: GSHPS/HEAT EXCHANGERS PROVIDE DUCTED HEATING AND COOLING AT UNDERFLOOR SPACE
7. AT SECOND STORY: PACKAGED ROOFTOP UNITS WITH DUCTED DISTRIBUTION (CEILING) TO CEILING VAV DIFFUSERS WITH NO REHEAT UNLESS IT IS RECOVERED ENERGY.

VENTILATION

8. DEDICATED OUTDOOR AIR SYSTEMS WITH DESICCANT AIR HANDLER TO DISPLACEMENT DIFFUSERS OR UNDERFLOOR AIR WITH SWIRL DIFFUSERS.

ENVELOPE / FINSIHES

9. INTERIOR INVERTED VENETIAN BLINDS (SPECULAR) FOR ALL WINDOWS
10. HIGHLY REFLECTIVE, SUSPENDED ACOUSTIC CLOUD CEILINGS AT ALL LAB, MEETING, AND OFFICE SPACES AT HIGH BAY AND FIRST FLOOR. (WWW.ARMSTRONG.COM) AT SECOND FLOOR, CATHEDRAL CEILINGS INSTALL ACOUSTIC, WHITE TECTUM PANELS BETWEEN STRUCTURE.
11. ALL NEW WINDOWS ASSUME SERIOUS WINDOWS FOR BASE PRICING (WWW.SERIOUSWINDOWS.COM), OPERABLE DOUBLE-HOPPER WINDOW FOR 2 STORY BLOCK U <0.25 TVIS >50%
12. INSULATION: WALLS (POLYISOCYANURATE SPF R7 PER INCH) R28 AT 4 INCHES AT INTERIOR.
13. INSULATION: ROOFS (FOAM BOARD R4++ PER INCH) 4 INCHES INTERNALLY APPLIED, 6 INCHES EXTERNALLY APPLIED
14. NIGHT INSULATION SHADES AT ALL WINDOWS WITH AUTOMATED CONTROLS, INTERNALLY APPLIED UNLESS OTHERWISE NOTED

CONTROLS

15. INTEGRATED BUILDING AUTOMATION SYSTEMS FOR OFFICE BLOCK AND HIGH BAY TO CONTROL THERMAL, VENTILATION, LIGHTING, SECURITY AND FIRE SAFETY. ASSUME TWO SEPARATE SYSTEMS FOR DIFFERING PARTS OF BUILDING FOR RESEARCH PURPOSES.
16. CONTROLS AT EVERY TERMINAL UNIT: AIR DIFFUSER, FAN-COIL (OR THERMAL TERMINAL UNIT), LIGHT FIXTURE, AND OUTLET TO BE INDIVIDUALLY CONTROLLABLE (RELAYS BUILT IN).
17. SENSORS FOR TEMPERATURE, AIR QUALITY, OCCUPANCY, DAYLIGHT, WINDOW POSITION, SHADE POSITION AT EACH ROOM / UNIT.

FIRE SUPRESSION

18. BULDING SHALL HAVE A FULL SPRINKLER SYSTEM.

BASEMENT

19. AT EXISTING BASEMENT ALLOW FOR 800 SF FOR MECHANICAL SPACE AND 450 SF FOR DATA SERVIER USE.

TECHNOLOGY AND FURNISHINGS

20. SEE PROGRAM TABLE FOR SPECIFIC TECHNOLOGY REQUIREMENTS AT VARYING SPACES.
21. SEE PROGRAM TABLE FOR ADDITIONAL FURNISHING REQUIREMENTS

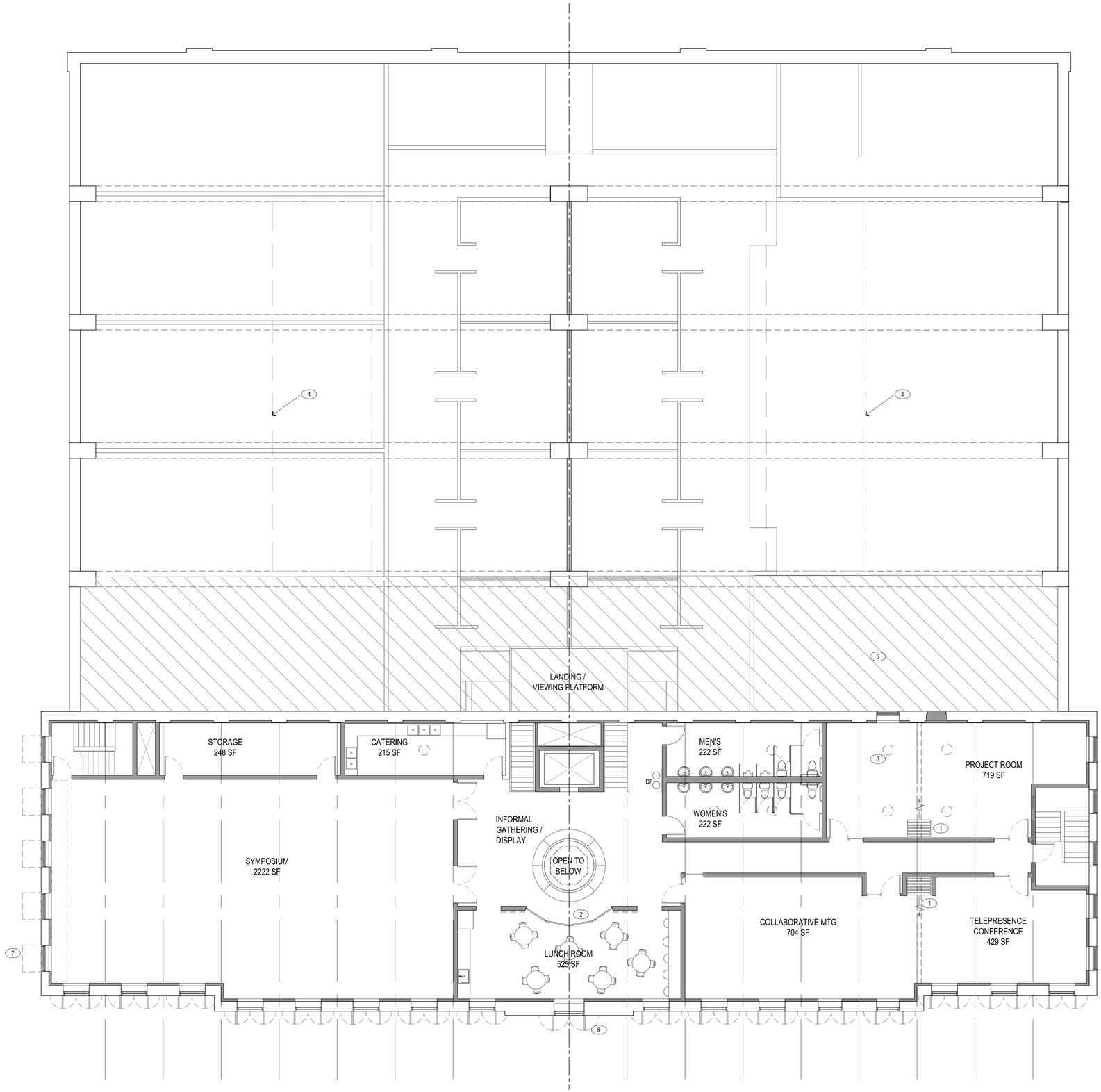
GPIC HUB HQ BUILDING 661
TEST FIT FOR CONCEPTUAL PRICING

MAIN FLOOR PLAN

4

1/8" = 1'-0"
5.9.11

prepared by ReVision Architecture



KEY NOTES

1. MOVABLE, FOLDING WALL
2. SEGEMENTED, MOVEALBE WALL (EQ, NANAWALL)
3. LIGHT TUBES. SEE ROOF PLAN ON SITE PLAN, SHEET 3
4. LIGHT MONITORS ABOVE
5. ALTERNATE MEZZANINE: 3800 SF. UNPROGRAMMED SPACE ACCESSED VIA MID FLOOR ELEVATOR STOP AND SOUTH STAIRS
6. COMBINED AUTOMATED SOLAR SHADE/SHUTTER AND THERMAL NIGHT SHADE, TYPICAL AT EAST ELEVATION.
7. RETRACTABLE AWNING WITH INTERIOR LIGHT SHELF, TYPICAL AT SOUTH ELEVATION OF 2 STORY STRUCTURE

LEGEND

(N) NEW

(E) EXISTING

(E) WALL

(N) PERMENANT WALL

(N) DEMOUNTABLE WALL (EG WWW.SMARTWALLS.COM)

ALTERNATE MEZZANINE: SEE KEY NOTE 5 ON SHEET 3

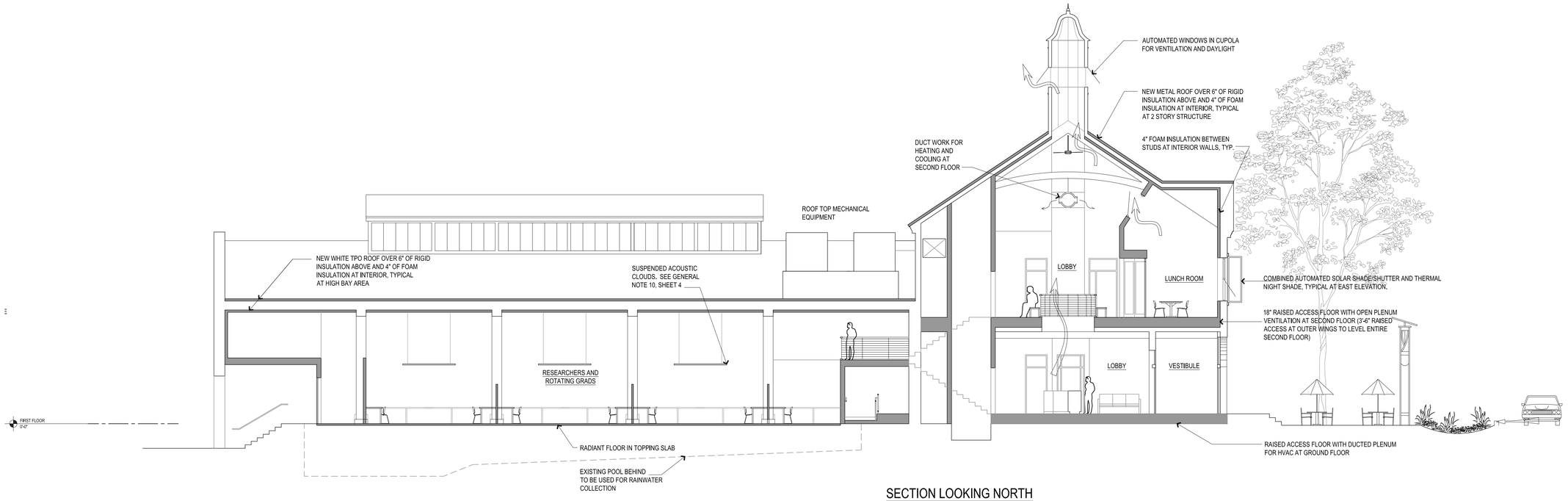
GPIC HUB HQ BUILDING 661
TEST FIT FOR CONCEPTUAL PRICING

SECOND FLOOR PLAN

5

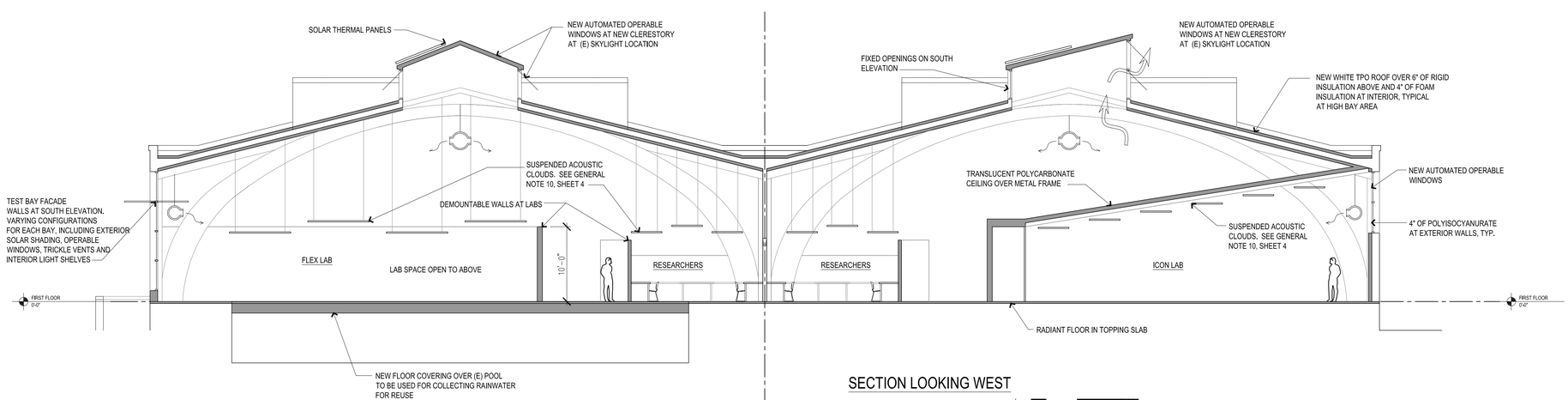
1/8" = 1'-0"
5.9.11

prepared by ReVision Architecture



SECTION LOOKING NORTH

0 2' 4' 8' 16'



SECTION LOOKING WEST

0 2' 4' 8' 16'

GPIC HUB HQ BUILDING 661
TEST FIT FOR CONCEPTUAL PRICING

SECTIONS

6

1/8" = 1'-0"
5.9.11

prepared by ReVision Architecture

Project: GPIC Hub Building 661
Number: 11060E1R2
Client: Re-Vision Architecture
Date: May 20, 2011 Rev: 27 May, 06, 13 June 11
Phase: Pre-Concept

BECKER & FRONDORF
Construction Cost Consulting • Project Management

ESTIMATE SUMMARY

CODE	DESCRIPTION	33,000	SF		COST
A	Exterior Envelope			$83	$2,726,800
B	Interior Demo, Reframing & Repairs			$42	$1,383,450
C	Partitions, Doors & Finishes			$47	$1,539,130
D	Specialties, Millwork, & Elevator			$45	$1,470,750
E	Mechanical & Electrical			$148	$4,885,880
F	Sitework				$669,480
	Subtotal				**$12,675,490**
	General Conditions / O. H. & P.		14.0%		$1,774,510
	Bond		1.0%		$145,000
	Contingency		20.0%		$2,919,000
	Total			**$531**	**$17,514,000**
	Alternates				
1	Mezzanine	3,800	SF	Add	$760,000

Notes
Costs are expressed in current, Spring 2011 dollars.

.

ESTIMATE

Proj: GPIC Hub Building 661
Date: May 20, 2011 Rev: 27 May, 06, 13 June

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
A	Exterior Envelope				
A1	Façade Cleaning - Brick	17,200	SF	2.00	34,400
A2	- Repointing/Brick/No Scope/Allowance 25%	4,300	SF	15.00	64,500
A3	- Brick Repairs Allowance/Minor	1	LS	25,000.00	25,000
A4	- New Façade @ West Entry	1	LS	25,000.00	25,000
A5	- Cupola/Cleaning Allowance	1	EA	10,000.00	10,000
A6	Roof - Removal/Membrane @ Curved	17,600	SF	2.00	35,200
A7	- Removal @ Gable	10,200	SF	2.00	20,400
A8	- TPO/White @ Curved	17,600	SF	15.00	264,000
A9	- Metal Roof @ Gable	10,200	SF	35.00	357,000
A10	- Insulation/Rigid/6"	27,800	SF	5.00	139,000
A11	- Insulation/Foam/4"	27,800	SF	5.00	139,000
A12	Clerestory - Skylights Demolition	2,000	SF	15.00	30,000
A13	- New Metal Roof/Frame/Deck/Etc	2,140	SF	70.00	149,800
A14	- New Serious Windows U<.25 TVIS > 50%	1,220	SF	100.00	122,000
A15	- Operable/Motorized Premium	980	SF	50.00	49,000
A16	Light Tubes	9	EA	2,000.00	18,000
A17	Cupola Windows - Operable/Motorized	1	EA	25,000.00	25,000
A18	South Windows - Demolition (4.5x6.5)	230	SF	10.00	2,300
A19	- Demolition/Brick	1,600	SF	5.00	8,000
A20	- New Lintels	100	LF	-	Existing to Remain
A21	- Windows/Serious U<.25 TVIS > 50%	230	SF	100.00	23,000
A22	- Curtain Wall/Serious U<.25 TVIS > 50%	1,600	SF	125.00	200,000
A23	- Retractable Awning	1,820	SF	75.00	136,500
A24	- Interior Light Shelf	1,980	SF	25.00	49,500
A25	- Operable/Motorized Premium	1,830	SF	50.00	91,500
A26	West Windows - Demolition (8.5x18)	920	SF	15.00	13,800
A27	- Curtain Wall/New Serious U<.25 TVIS > 50%	920	SF	125.00	115,000
A28	- Vert. Fin Solar Shading	360	SF	75.00	27,000
A29	- Operable/Motorized Double Hopper	920	SF	100.00	92,000
A30	East Windows - Demolition (4.5x6.5 & 8)	1,040	SF	10.00	10,400
A31	- New Serious Windows U<.25 TVIS > 50%	1,040	SF	100.00	104,000
A32	- Auto Solar Shade	1,040	SF	50.00	52,000
A33	- Shutter	1,040	SF	50.00	52,000
A34	- Operable/Motorized Premium	1,040	SF	50.00	52,000
A35	North Windows - Demolition/Glass Block	600	SF	15.00	9,000
A36	- Curtain Wall/New Serious U<.25 TVIS > 50%	600	SF	125.00	75,000
A37	- Operable/Motorized Premium	600	SF	50.00	30,000
A38	Roof Dunnage/Curbs Allowance	1	LS	15,000.00	15,000
A39	Exterior Doors/Hdw/Frames - Single	3	EA	1,500.00	4,500
A40	- Double	3	PR	7,500.00	22,500
A41	West Entry Stairs/Existing - Patching Allowance	1	LS	2,000.00	2,000
A42	Loading Dock - Not Shown/Allowance	1	EA	25,000.00	25,000
A43	- Overhead Door	1	EA	7,500.00	7,500
A44					0
A45					0
	Subtotal				2,726,800

.

ESTIMATE

Proj: GPIC Hub Building 661
Date: May 20, 2011 Rev: 27 May, 06, 13 June

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
B	Interior Demo, Reframing & Repairs				
B1	Hazmat - Asbestos/Lead/Mold	1	LS	-	By Others
B2	- UG Storage Tanks/Contaminated Soil	1	LS	-	By Others
B3	Demolition - Floor & Ceiling Finishes	33,000	SF	1.00	33,000
B4	- Partitions	1,030	LF	40.00	41,200
B5	- Doors	22	EA	250.00	5,500
B6	- Stairs	80	R	100.00	8,000
B7	- Upper Floor Studio	1	LS	5,000.00	5,000
B8	- Cut @ Slab for New Stairs	340	SF	15.00	5,100
B9	- Cut @ Lobby Circle	1	EA	5,000.00	5,000
B10	- MEP	33,000	SF	3.00	99,000
B11	Floor Infill's	390	SF	25.00	9,750
B12	Cutting & Patching Allowance	33,000	SF	3.00	99,000
B13	First Floor - Soil Exchange/3' Deep	900	CY	45.00	40,500
B14	- Cracking Slab (Remove & Replace)	8,100	SF	12.50	101,250
B15	- Topping Slab @ Radiant Floor	12,450	SF	10.00	124,500
B16	- Pool/Floor Covering/Framing w/ Conc. on Deck	3,700	SF	25.00	92,500
B17	Interior Roof @ Icon Lab - Translucent Polycarb.	2,830	SF	50.00	141,500
B18	- Framing	2,830	SF	25.00	70,750
B19	Stairs - Fire	104	R	800.00	83,200
B20	- Misc.	6	R	800.00	4,800
B21	Ramps	300	SF	15.00	4,500
B22	- Railings	30	LF	250.00	7,500
B23	Caulking & Sealants	33,000	SF	0.20	6,600
B24	Rough Carpentry	33,000	SF	1.00	33,000
B25	Misc. Metals	33,000	SF	1.00	33,000
B26	Pool Curve Roof - Wood Arches	8,800	SF	-	Existing to Remain
B27	- Channel Slabs/100% Replace./20 GA Deck	8,800	SF	15.00	132,000
B28	- Purlins Replacement	10	EA	3,300.00	33,000
B29	- Clean & Repair Corroded Base	1	EA	1,000.00	1,000
B30	- Rib Repairs	1	LS	-	NIC
B31	- Shoring/Lift Allowance	1	LS	25,000.00	25,000
B32	- Alum. Panels/Removal	8,800	SF	3.00	26,400
B33	- Repair Capstone	110	LF	50.00	5,500
B34	GYM Curve Roof - Wood Arches	8,800	SF	-	Existing to Remain
B35	- Channel Slabs/15% Replace./20 GA Deck	1,300	SF	15.00	19,500
B36	- Purlins Replacement	2	EA	3,300.00	6,600
B37	- Purlins Repairs	21	Loc	500.00	10,500
B38	- Concrete Repair/Patching	40	LF	150.00	6,000
B39	- Steel Repair	50	LF	300.00	15,000
B40	- Shoring/Lift Allowance	1	LS	15,000.00	15,000
B41	- Repair Capstone	110	LF	50.00	5,500
B42	Two Story Roof - 2" Nail Crete	10,200	SF	-	Existing to Remain
B43	- Plank Replacement/10%	1,020	SF	15.00	15,300
B44	- Purlins @ 2' OC	10,200	SF	-	Existing to Remain
B45	- Wood Arches/Delamination Repair	20	LF	150.00	3,000
B46	- Shoring/Lift Allowance	1	LS	10,000.00	10,000
	Subtotal				1,383,450

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ESTIMATE

Proj: GPIC Hub Building 661
Date: May 20, 2011 Rev: 27 May, 06, 13 June

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
C	Partitions, Doors & Finishes				
C1	Partitions - New/Assume DW	14,500	SF	10.00	145,000
C2	- Existing	2,500	SF	-	w/ Paint
C3	- 4" Foam Insulation @ Perimeter	15,600	SF	5.00	78,000
C4	- DW Furring @ Perimeter	15,600	SF	3.50	54,600
C5	Doors/Hdw/Frames	18	EA	1,300.00	23,400
C6	- Double	4	PR	2,500.00	10,000
C7	Interior Glazing - Transoms	13	EA	750.00	9,750
C8	- Nana Wall/Segmented	15	LF	1,350.00	20,250
C9	- Sidelights	11	EA	500.00	5,500
C10	Interior Window Sills	1	LS	-	NIC
C11	Floor Finishes - Allowance/No Scope	30,700	SF	10.00	307,000
C12	- Toilets	1,050	SF	15.00	15,750
C13	- Basement/Floor Sealer	1,250	SF	2.00	2,500
C14	- Flash Patching	1	LS	-	NIC
C15	Wall Finishes - Paint @ New Partitions	29,000	SF	1.25	36,250
C16	- Paint @ Existing	20,600	SF	1.25	25,750
C17	- Perimeter	17,200	SF	1.25	21,500
C18	- Wood Panels/Etc	1	LS	-	NIC
C19	Ceiling Finishes - Clouds	23,200	SF	25.00	580,000
C20	- Tectum	7,500	SF	10.00	75,000
C21	- Toilets/Assume DW	1,050	SF	7.50	7,880
C22	- Basement	1,250	SF	-	NIC
C23	Structure - Paint Existing above Clouds	33,000	SF	2.00	66,000
C24	- Wood Arches/Purlins/Clean & Seal	1	LS	50,000.00	50,000
C25	- Truss	1	LS	-	NIC
C26	- Fireproofing	1	LS	-	NIC
C27	Soffits Allowance- Minor	1	LS	5,000.00	5,000
C28					0
C29					0
C30					0
C31					0
C32					0
C33					0
C34					0
C35					0
C36					0
C37					0
C38					0
C39					0
C40					0
C41					0
C42					0
C43					0
C44					0
C45					0
	Subtotal				1,539,130

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ESTIMATE

Proj: GPIC Hub Building 661
Date: May 20, 2011 Rev: 27 May, 06, 13 June

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
D	Specialties, Millwork, & Elevator				
D1	Toilet Specialties - Allowance per Room	4	EA	6,000.00	24,000
D2	Lockers	1	LS	-	NIC
D3	Whiteboards	1	LS	5,000.00	5,000
D4	Projection Screens	1	LS	-	w/ AV Allowance
D5	FE Cabinets - Not Shown/Allowance	6	EA	450.00	2,700
D6	Movable Folding Wall	40	LF	1,800.00	72,000
D7	Demountable Partitions - 10' H	890	LF	150.00	133,500
D8	- Glass/Assumed 8' H	250	LF	250.00	62,500
D9	- Doors/Glass/Single	20	EA	2,500.00	50,000
D10	- Doors/Glass/Double	6	EA	5,000.00	30,000
D11	Raised Access Floor - Ducted Plenum @ 1st Flr	7,600	SF	35.00	266,000
D12	- 18" Plenum Flr @ 2nd Floor	4,710	SF	30.00	141,300
D13	- 3' H @ 2nd Floor	2,750	SF	50.00	137,500
D14	Acoustical Wall Panels	1	LS	-	NIC
D15	Interactive Displays (6 EA) *	1	LS	45,000.00	45,000
D16	Signage Allowance	33,000	SF	1.00	33,000
D17	Catering Kitchen	230	SF	200.00	46,000
D18	Millwork - Lunch Room	30	LF	500.00	15,000
D19	- Security Kiosk	12	LF	1,500.00	18,000
D20	- Seating	20	LF	-	FF&E
D21	Furnishings - Inverted Blinds @ Windows	1,280	SF	25.00	32,000
D22	- Night Insulation Shade	6,900	SF	25.00	172,500
D23	- Entrance Mats	2	EA	1,500.00	3,000
D24	- Biological Freezer	1	EA	-	By Owner
D25	- Lab/Office/Conf/Symposium Tables & Chairs	1	EA	-	By Owner
D26	New Elevator - Demolition @ Slabs	150	SF	15.00	2,250
D27	- Excavate/Pit/Ladder/Sump Pump/Drains	1	LS	15,000.00	15,000
D28	- Underpinning	40	LF	1,000.00	40,000
D29	- Shaft	1,300	SF	15.00	19,500
D30	- Misc. Metals	1	LS	5,000.00	5,000
D31	- Elevator/Kone	1	EA	85,000.00	85,000
D32	- Electrical/Etc.	1	EA	15,000.00	15,000
D33					0
D34					0
D35					0
D36					0
D37					0
D38					0
D39					0
D40					0
D41					0
D42					0
D43					0
D44					0
D45					0
	Subtotal				1,470,750

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ESTIMATE

Proj: GPIC Hub Building 661
Date: May 20, 2011 Rev: 27 May, 06, 13 June

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
E	Mechanical & Electrical				
E1	Sprinklers - Wet System	33,000	SF	5.00	165,000
E2	- Fire Pump	1	LS	-	Pending Testing
E3	- Dry/Pre-action/Foam	1	LS	-	NIC
E4	- Server Room	1	LS	50,000.00	50,000
E5	Plumbing - Per Fixture Allowance	35	EA	5,000.00	175,000
E6	- BFP	1	LS	5,000.00	5,000
E7	- Water Softener	1	LS	-	NIC
E8	- Gas Piping/Metering Allowance	1	LS	75,000.00	75,000
E9	- Catering Kitchen	1	LS	25,000.00	25,000
E10	- Roof Drainage	24,250	SF	2.00	48,500
E11	- Rain Water Collection	1	LS	100,000.00	100,000
E12	- Pool Water Storage Allowance/No Scope	1	LS	50,000.00	50,000
E13	- Hot Water Solar	1	LS	50,000.00	50,000
E14	HVAC - Geo. Wells/50%/Assume 280 SF/TN	60	TN	4,000.00	240,000
E15	- Equipment	33,000	SF	10.00	330,000
E16	- Heat Recovery	33,000	SF	2.00	66,000
E17	- Piping & Insulation	33,000	SF	5.00	165,000
E18	- Ductwork & Insulation	33,000	SF	10.00	330,000
E19	- Discount Ductwork/Access Flooring	7,500	SF	(5.00)	(37,500)
E20	- Chilled Beams	8,200	SF	5.00	41,000
E21	- Radiant Floor Heating	16,650	SF	15.00	249,750
E22	- Solar @ 50% Radiant Flr Heating/Premium	8,200	SF	25.00	205,000
E23	- Controls	33,000	SF	15.00	495,000
E24	Electrical - Power	33,000	SF	20.00	660,000
E25	- Lighting/Assumed LED	33,000	SF	15.00	495,000
E26	- Lighting Control/Assumed Eco System	33,000	SF	5.00	165,000
E27	Systems - Fire Alarm	33,000	SF	4.00	132,000
E28	- Tele/Data	33,000	SF	5.00	165,000
E29	- Security	33,000	SF	3.00	99,000
E30	- Lightning Protection	24,250	SF	0.50	12,130
E31	- AV Allowance	33,000	SF	10.00	330,000
E32	- Sound Paging & Clock System	33,000	SF	-	NIC
E33	Emergency Generator	1	LS	-	NIC
E34					0
E35					0
E36					0
E37					0
E38					0
E39					0
E40					0
E41					0
E42					0
E43					0
E44					0
E45					0
	Subtotal				4,885,880

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ESTIMATE

Proj: GPIC Hub Building 661
Date: May 20, 2011 Rev: 27 May, 06, 13 June

CODE	DESCRIPTION	QUANTITY	UNIT	UNIT COST	COST
F	Sitework				
F1	Demolition Allowance - No Scope/Allowance	16,000	SF	2.00	32,000
F2	- Connector @ North	1	EA	-	By Others
F3	- Trees	1	LS	-	w/ Allowance
F4	- Paving	1	LS	-	w/ Allowance
F5	- Sidewalks	1	LS	-	w/ Allowance
F6	- Curbing	1	LS	-	w/ Allowance
F7	- Misc.	1	LS	-	w/ Allowance
F8	Erosion Control	1	LS	5,000.00	5,000
F9	Earthwork/Minor	1	LS	10,000.00	10,000
F10	New Paving - Asphalt/Assume Pervious	11,350	SF	7.50	85,130
F11	- Pervious Entry & Terrace Paving	3,600	SF	25.00	90,000
F12	Curb	700	LF	20.00	14,000
F13	Parking Spaces - Stripping	14	EA	25.00	350
F14	Stairs & Railings - East	30	LF	150.00	4,500
F15	- South	2	EA	5,000.00	10,000
F16	Ramp	200	SF	15.00	3,000
F17	- Railings	60	LF	150.00	9,000
F18	Landscaping - Minor	1	LS	25,000.00	25,000
F19	Bike Parking Shelter	140	SF	75.00	10,500
F20	Signage	1	LS	10,000.00	10,000
F21	Bollards	1	LS	2,500.00	2,500
F22	Trash Enclosures	1	LS	5,000.00	5,000
F23	Site Furnishings - Benches	5	EA	2,500.00	12,500
F24	- Picnic Tables/Chairs	9	EA	-	By Owner
F25	Site Lighting - Pole	1	LS	-	Existing to Remain
F26	- Hybrid Solar/Wind Street Lamps	4	EA	25,000.00	100,000
F27	- Electric Car Charging Station	1	LS	50,000.00	50,000
F28	Utilities - Water	50	LF	200.00	10,000
F29	- Fire	50	LF	200.00	10,000
F30	- Gas	50	LF	1,200.00	60,000
F31	- Storm Allowance	1	LS	50,000.00	50,000
F32	- Bioswale / Rain Garden	1,640	SF	25.00	41,000
F33	- Sanitary	1	LS	-	Existing to Remain
F34	- Electrical	50	LF	300.00	15,000
F35	- Telecom	50	LF	100.00	5,000
F36	- Relocations	1	LS	-	NIC
F37					0
F38					0
F39					0
F40					0
F41					0
F42					0
F43					0
F44					0
F45					0
	Subtotal				669,480

.

PENNSTATE

1855

NON-BINDING ARCHITECT AND ENGINEER FEE SCHEDULE

Project: GPIC HUB, Philadelphia Navy Yard
Building 661 Retrofit

Firm Name: _____

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

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

Please return completed form by August 25, 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.

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 RESPONSIBILTIES

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