PENNSTATE

Office of Physical Plant

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

DATE: January 16, 2012

SUBJECT: Steidle Building Renovation,
University Park

TO: BLTa
Bohlin Cywinski Jackson
EYP
Goody Clancy
Nalls Architecture
Perfido Weiskopf Wagstaff+Goettel
Perkins + Will/R3a
SLAM
SmithGroup JJR
Stantec
Venturi Scott Brown and Associates

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 **February 10, 2012 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. A document not exceeding 60 pages should be more than adequate to provide the requested information. Please submit to my office **ten** copies of all materials. In order to better understand our goals and the major issues driving this project, we encourage you to visit the site; please contact Larry Achterberg, Director of Business and Operations, College of Earth and Mineral Sciences at 814-863-4634, lha1@psu.edu to schedule your site visit and arrange a meeting with the appropriate individuals. Please contact Lisa Berkey, Director of Design and Construction at 814-865-7187, lab2@psu.edu for any project management questions and contact me if you have any process or planning questions.

In addition to the questionnaire, in order to help you formulate a response, enclosed you will find excerpts from a program and a utility and building systems scoping document, both prepared in 2010. Also included is a non-binding fee proposal form for you to fill out; please submit one copy of this form under separate cover; to assist you in filling out this form please assume a construction budget for phase one of $14,200,000 and an FF&E budget of $1,800,000. 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 February 21, 2012 and posted to our web site. Interviews with the three short-listed firms will be held on March 2, 2012. Results of the interviews will be announced at the Board of Trustees meeting on March 16, 2012 and posted to our web site.

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

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

Sincerely,

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

Enclosures

cc: Selection Committee Members

QUESTIONNAIRE

Steidle Building Renovation,
University Park

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 **ten copies** of all material submitted. The deadline for submission is **February 10, 2012 at Noon.**

1. Please describe your approach to this project. Include a description of the scope of work your team will provide.

2. In addition to any further thoughts you might have on the essence of this project, we would like to see further evidence of your firm's ability to translate design intentions into a meaningful project (including the site). Therefore, please discuss in detail, but in no more than one or two pages, an example from your portfolio relevant to our project that best indicates the appropriate resolution of an understanding of the uniqueness of a project, design intentions, and translation of those design intentions into a meaningful and synthesized final solution.

3. Qualifications and experience of the lead design team members, **including consultants**, to be assigned to this project. Provide a clear indication of the roles to be performed by each **individual**. Please be very specific regarding the personal involvement and on-site participation of each lead design **individual.**

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

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

5. Experience of the firm and any consultants in the design of facilities similar to the ones proposed (college and other), completed or under construction during the past ten years. List for each the completion date, final construction cost and gross square feet provided, and be very specific about the services provided by your firm. Identify those specific projects included in the proposed design team experience listed in #3 above.

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

7. Evidence of the team's commitment to sustainable design.

8. List five client references for similar scope projects completed during the past ten years, giving name and telephone number. In order to give us an indication of your cost control track record, please **provide accurate and complete data indicating the gross square foot area, the design estimated cost, bid cost, the final total construction cost and the bid date for each project.** Please explain the reason for any major discrepancies between estimated, bid and final construction costs. Please make sure the telephone number of each client reference is current.

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

10. Please provide a proposed design schedule for each component of this project in graphic form allowing one week for any necessary Penn State University review. Assume the design process will start in April, 2012.

11. List errors and omissions insurance coverage.

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

    Which of the above are professionally registered?

PENNSTATE

1855

Department of Materials Science and Engineering

Steidle Building Renovation Program

Preliminary Statement

Gary Messing, Frank Driscoll
6/21/2010 (rev.12/8/10)

BACKGROUND AND HISTORY

Project Description

This project will renovate the Steidle Building located at the University Park Campus of The Pennsylvania State University. Steidle Building was constructed in 1931 and contains 57,632 ASF and 85,917 GSF. The building currently houses the Department of Materials Science and Engineering within the College of Earth and Mineral Sciences and serves as the home base for 30 faculty members, 14 staff, 140 undergraduates, 83 graduate assistants, 7 post docs, 38 researchers, 5 emeritus faculty and 3 shop employees.

Charles Z. Klauder – The Architect

Steidle Building, designed by Architect Charles Z. Klauder, was constructed in 1930 and occupied in 1931 for a cost of $800,000. Klauder is the architect who has had the greatest impact upon the architecture of Penn State's central campus. The addition of a center wing to the original building was completed in 1938 when funds from the federal Public Works Administration were funneled through the General State Authority to Penn State. Klauder was a prolific collegiate architect at many institutions across America. Klauder built in a variety of styles, and he believed that Georgian revival was appropriate for colleges desiring economy and order. Much of what he designed for Penn State can be characterized as Georgian revival in style, leaning toward neoclassicism when greater monumentality was desired. The Steidle Building reflects Klauder's approach to many of the larger academic buildings he designed for Penn State. Large red brick Georgian revival blocks were ordered through strong cornices, pilasters accentuating end pavilions, and a monumental classical flourish at the main entrance. Klauder's use of Georgian and classical motifs can at times seem a touch unorthodox and mannered. While Steidle is fronted with a conflation of a peristyle of columns, Roman attic, and Pantheon-like dome, a more common frontispiece for Klauder's buildings is a variation on a Roman triumphal arch, one that often idiosyncratically leaves out the central arch.

Building History

Steidle Building, now the home of the Department of Materials Science and Engineering, is a classical revival-style structure with a semicircular portico topped by a copper dome. It was designed by Charles Z. Klauder and named for Edward Steidle, founding dean of the College of Earth and Mineral Sciences (1928 – 53). Steidle was an alumnus of Penn State's Class of 1911 and came to the College from the Carnegie Institute of Technology. Soon after taking the deanship, Steidle had the school's name changed from Mines and Metallurgy to Mineral Industries, highlighting his sense that its purview would expand well beyond coal mining. In 1930, the school completed construction of a new brick-and-limestone Mineral Industries Building (later to become Steidle Building). Under Steidle's leadership, the School of Mineral Industries entered into partnerships with other academic and industry groups – and Steidle was so successful at promoting mineral industries education that the Pennsylvania General Assembly changed the University's charter in 1939 to make the state's secretary of mines a fourth ex officio member of the Board of Trustees.

Steidle Building was the long time home of the Mineral Sciences Museum and Art Gallery, which has since moved to Deike Building.

Basic Department Information for Materials Science and Engineering

Recently, it was hoped that the entire Department of Materials Science and Engineering would consolidate in a new building being constructed on campus called the Millennium Science Complex, but a redirection in focus for this new building has changed the occupancy plans and only some of the research programs will be housed in the new building. This means that approximately two-thirds of the faculty and the administrative and academic core of Materials Sciences will remain in Steidle Building for the foreseeable future after the new Millennium Science Complex is occupied in 2011.

Materials Science and Engineering is one of fourteen engineering departments at Penn State. Thirty full-time faculty members make up one of the premier materials departments in the world. The department offers an in-depth education over the full spectrum of materials science and engineering.

Currently there are 140 undergraduate and 180 graduate students enrolled in Materials Science and Engineering. Students specialize in ceramics, polymers, metals or electronic and photonic materials. A number of minor options are also available to the students. High level research opportunities are available to undergraduate students through the Undergraduate Research Fellows program, International Internships in Materials, numerous Cooperative Education & Professional Internship Program activities with industry and government labs, and the senior capstone project.

Graduate studies in materials are organized as part of the Intercollege Graduate Degree Program at Penn State, and some of the graduate students and faculty will reside in the new Millennium Science Complex. Faculty have research programs covering all interdisciplinary areas of the field including nanotechnology, electronic materials, photonic materials, energy materials, biomaterials, computational materials and structural materials with applications in health care, communications, transportation, recreation, energy and electronics. Faculty members provide leadership in MRI, the NSF Industry/University Cooperative Research Centers on Dielectric Materials, Particulate Materials, Glass, Computational Materials Design, and the Keck Smart Materials Integration Lab. They are also actively engaged in the National Science Foundation Materials Research Science and Engineering Center for Nanoscale Science.

PROGRAM ISSUES AND OBJECTIVES

Steidle Renovation Program Objectives and Background

Steidle Building will be renovated into a modern and first rate research and educational facility that will ensure that Penn State maintains its reputation as one of the premier departments for materials science and engineering in the United States.

Over the last year the faculty and staff have met many times as small groups and at faculty/staff meetings of the Department of Materials Science and Engineering to develop a vision for a renovated Steidle Building that will meet the department's needs for the next 20 – 30 years. The renovation plan is guided by the special goal in the department's strategic plan:

> *"The department will reorganize Steidle Building around its core educational mission and dedicate major sectors of Steidle Building to research clusters, and shared facilities. The Steidle Building reorganization will create a collegial, collaborative environment for faculty, staff and students.*"

Following are the objectives for the renovation to support the goal:

1. Redistribute faculty and staff offices, and student spaces to enhance departmental community and efficiency.

2. Relocate Grad/Post□doc/Researcher offices to the main hallways of the second and third floors. Increase the quality of offices, remove student offices from the labs, and increase people density, collaboration, and collegiality.

3. Establish suites of labs to support research clusters in:
    - Materials for Energy Conversion and Storage
    - Center for the Study of Polymer Systems
    - NSF Industry/University Cooperative Research Center in Computational Materials Design (CCMD)
    - Structural Materials
    - Materials in Medicine

4. Establish shared research facilities in cluster areas where possible.

5. Create a new, shared Electrochemistry Lab to support the Materials for Energy Conversion and Storage cluster.

6. Based on a cluster proposal process, identify needs for lab renovation and utilities to support research needs such as special systems, fume hoods, environmental controls and other special and basic services.

7. House and group staff functions for better efficiency and interactions.

Research Clusters

Committees comprised of faculty, researchers, and staff representing each cluster were formed and tasked with outlining a plan for their cluster, including the approximate square footage needed, suggested layouts of major equipment areas, approximate number of people involved in the cluster, and any special utilities or other needs.

The Materials Science and Engineering department has aligned its research in a manner similar to the cluster model used in the organization of the Materials Research Institute in the new Millennium Science Complex. Steidle Building will be organized around our most prominent research areas and strategic directions. The Materials Science and Engineering clusters will complement the research clusters supported at MRI in the new Millennium Science Complex and present a more unified and first class organizational structure for both the internal and external materials community.

These research clusters will provide opportunity for natural collaboration among the faculty, researchers and staff working on different projects or from different faculty groups if they are working in the same area and seeing each other on a regular basis. To facilitate collaboration we propose to cluster students of similar research into a larger general student office. Faculty offices will be organized to be near their cluster. Meeting rooms will be located throughout the building. As a department, we strive to be centered on people and our research will be centered on collaborative efforts.

Shared labs:

By clustering research we will be able to move to a more efficient, cost effective shared lab facility model where labs are larger, open, and used by people with similar research. Labs should be more easily configured to meet the changing needs of research over time. For example, benches should be easily moved to reconfigure space within a larger lab area. These shared lab areas will host the clusters and are designed with work flow and safety in mind. The openness and visibility of these shared lab spaces from the corridors will increase visibility, awareness and safety as well.

Flexibility:

In moving to shared lab facilities, the research labs need to be more easily reconfigurable for each research contract or to meet new research areas as they evolve. As research funding opportunities change, we need to have labs that can adapt without enduring a one year or longer time delay for construction and six figure construction cost. Movable lab benches would facilitate resizing work areas as needed. The flexibility for reconfiguring these labs as research and/or research clusters change will grant us a long term return on our investment as we improve efficiency and cost savings from having more shared equipment in less space.

We have the ability in this project to reclaim some wasted space by removing walls and odd-shaped rooms, converting some hallway space to lab space and gaining some space from more

efficient student offices. This will provide us with some additional square footage for our new flexible lab space.

Atmosphere:

By its nature, the study of Materials Science and Engineering is multidisciplinary. Our faculty and researchers are involved with many other departments around the University. Collaboration is a vital part of our culture, and our plans for organizing Steidle Building are developed around this concept. The offices of faculty that share common research interests are clustered together. Similarly the students who share common research interests will share offices and lab areas. Larger labs with fewer dividing walls will facilitate more contact between researchers and foster more collaboration in the labs. Windowed walls will be added to facilitate hallway viewing into the major labs and to enhance the safety of the research environment.

The research clusters hosted in Steidle Building are:

1.) CSPS – Center for the Study of Polymer Systems
2.) CCMD – Center for Computational Materials Design
3.) Structural Materials
4.) Materials for Energy Conversion and Storage
5.) Materials in Medicine

CLIENTS AND SERVICES

Center for the Study of Polymer Systems (CSPS)

The CSPS at Penn State resides within two departments: Chemical Engineering and Materials Science and Engineering, but is headquartered in Steidle Building. The CSPS research specializes in the synthesis, characterization, modeling, and processing of polymeric systems.

CSPS comprises professionals with expertise in polymer engineering and science and laboratories equipped for carrying out a diverse range of polymer studies. The experimental, modeling, and theoretical activities of the Center are of interest to scientists and engineers involved in the design, control, and operation of numerous polymer processes including the production of films, coating, paints, membranes, foams, composites, polymer reactors, and polymer devolatilization.

Mission:
To conduct world-class competitive research under industrial and government sponsorship. CSPS fosters interdisciplinary research of a cohesive group of faculty within PSU, where interdisciplinary technologies are developed, and transferred to our Industrial Partners.

Vision:
To become the leading research center that responds to the needs of industry, government laboratories and universities for experimental data and models to treat polymeric systems.

Center for Computational Materials Design (CCMD)

The CCMD is a National Science Foundation supported Industry/University Cooperative Research Center (I/UCRC). As a collaborative effort between The Pennsylvania State University and the Georgia Institute of Technology, the CCMD embodies the expertise of over 40 research faculty and 25 graduate students, post-docs, and visiting scientists in seven different academic departments.

The mission of the CCMD is to educate the next generation of scientists and engineers in the emerging field of materials design. Member organizations benefit directly from the results of research projects, and from the long reaching value derived from mentoring students as prospective employees.

Within the CCMD, the complementary expertise of Penn State and Georgia Tech is brought together in the following way:

Penn State University
- Computational thermodynamics and kinetics
- Process-structure relations (phase fields)
- Databases

Georgia Tech
- Computational structure-property relations
- Microstructure representation and characterization
- Systems-based, distributed, collaborative robust materials design

The CCMD develops long-term partnerships with industry and government in the emerging technology of materials design. Catalyzed by an investment from the NSF, the CCMD is primarily supported by Center members, with NSF providing support for administrative infrastructure and Center development. Both Penn State and Georgia Tech provide considerable overhead reduction on CCMD projects to provide further substantial leveraging of member dues. Research initiatives are recommended by the Member Advisory Board.

Mission:
To educate the next generation of scientists and engineers with a broad, industrially relevant perspective on engineering research and practice, preparing them to contribute in the emerging field of materials design. In this regard, the member organizations will not only realize direct benefits from the results of research projects, but will also benefit in the longer term from mentoring students as prospective employees who will be uniquely suited to implement computational materials design tools in practice.

Vision:
To be recognized as the premier collaborative activity in computational materials design among US universities, industries and government laboratories.

Structural Materials

The structural materials group in the Department focuses on the development of test and data analysis methodologies for the evaluation of the thermal, mechanical, elastic and physical properties necessary for the development of new materials and design strategies for their use in thermostructural applications. The group collaborates across all four materials sub-disciplines (ceramics, electronic and photonic materials, metals, polymers, and composites derived thereof, and is primarily housed in the Mechanical Test Laboratory (MTL) in Steidle Building. Frequent collaboration with other researchers campus-wide is the norm, and the MTL has become recognized at Penn State as a user facility that provides both apparatus and expertise required for materials development in a wide range of units throughout the University.

Mission:
To develop thermo-mechanical test methods, facilities and databases for the characterization of thermal, elastic, mechanical, and physical properties of materials as a function of temperature and in environments typical of their use as thermostructural components in industrial heating, aerospace, transportation, energy and advanced processing applications.
Vision:
To provide the facilities and expertise in thermostructural materials characterization which responds to the needs of industry, government and universities for the development of high performance materials for advanced component design.

Materials for Energy Conversion and Storage

The Materials for Energy Conversion and Storage group is composed of investigators with collaborations across Materials Science and Engineering, Energy and Mineral Engineering, Mechanical and Nuclear Engineering, Civil and Environmental Engineering, Chemistry, and Chemical Engineering. This intercollege working group has core expertise in materials synthesis, ion conduction, electrochemistry, catalysis, corrosion, electrokinetic phenomena, electron transfer, device fabrication and modeling, and materials and process modeling. We pursue fundamental understanding of materials phenomena in

energy conversion and storage problems, create advanced technology that can be deployed in energy systems, and educate the next-generation of researchers to solve globally important energy problems.

Mission:
To provide state-of-the-art laboratories and experimental facilities that showcase modern interdisciplinary capability to develop new fundamental materials knowledge as applied to energy-focused problems. Maintain key electrochemical, spectroscopic, synthetic, device fabrication and sample environment capability with the flexibility to reconfigure materials testing systems and characterization equipment to address current problems at the intersection of materials and energy research. Develop complementary, yet unique, capabilities that are additive to the other energy and materials efforts on campus and attract collaborations from across the University.

Vision:
Materials challenges are some of the key barriers to realizing new solutions for high performance energy conversion and storage technologies. Harnessing energy from the sun, chemical to electrical reversible conversion, enabling long-lived energy conversion and storage devices, and creating new platforms for energy conversion and storage processes rely on materials. The vision of the Materials for Energy Conversion and Storage cluster is to cement Penn State's place as a key academic performer in solar, electrochemical and extreme environment research that relies on new materials solutions. We will have an impact on important industrial applications and continue to perform world-class, federally-funded academic research. Our comprehensive program will address critical issues in electrochemical, photoelectrochemical, corrosion and ion transport processes.

Materials in Medicine

The current efforts in Materials in Medicine span four Penn State Colleges and 12 Departments including Materials Science and Engineering, Physics, Chemistry, Bioengineering, Mechanical and Nuclear Engineering, Industrial and Systems Engineering, Engineering Science and Mechanics, Aerospace Engineering, Biomaterials, Pharmacology, Gastroenterology and Anesthesiology and Surgery. The facility in Materials Translational NanoMedicine (MTNM) provides synthetic capabilities, processing and characterization at the nexus between biology and nanomaterials.

Materials in Medicine is composed of individuals with expertise spanning disciplines from material nanotechnology and science to clinical medicine. The laboratories are equipped to provide support from fundamental physical chemistry and biochemistry of biological-nanoscience interactions through to *in vitro* (cell culture) evaluations.

Mission:
To conduct high impact studies that improve human healthcare through materials nanoscience and technology, particularly in the transformation of cancer diagnosis and treatment to more effective, sensitive and benign approaches.

Vision:
To become one of the leading research centers in Materials in Medicine to transform the treatment of cancer.

EXISTING FACILITIES/CONDITIONS

User-identified Existing Conditions in Steidle Building

Steidle Building was constructed in 1931 and was built for different purposes than for which it is currently being used. The building has undergone numerous changes and space reassignments to meet the ever changing instruction and long term research needs of the generations of students, faculty and researchers that have worked in this building. As a result of these piecemeal changes, the research labs today are an unusual mix of specialized and oddly arranged spaces that do not meet the needs or safety standards of today's researchers and research foci. Organization of the labs and many of the support spaces is quite random as faculty have come and gone over the past eighty years. Recently, some of the spaces for education and administration were renovated and should meet the future needs of the department in terms of configuration and functionality.

Steidle Building is long overdue for a total capital renewal to address existing building deficiencies and to provide modern research laboratory systems and support areas. The building lacks central HVAC and most of the building's mechanical systems and services are antiquated and in desperate need of replacement, upgrade, installation or repair. Along with updating the aged utility infrastructure of the building, more central user utilities are needed for the various laboratory classes and research programs. It is desired to reorganize portions of the building by the removal of walls to create new lab and office areas that are more open, collaborative and conducive to the current program goals and objectives.

Lack of modern labs and utilities is affecting our competitiveness in winning research contracts and recruiting faculty and first rate students. It is becoming progressively more difficult and more expensive to "make do with what we have". With the application of state Labor and Industry regulations and the dramatic cost escalations in construction, a renovation of one lab space for new faculty, or for adaptation to meet new uses, can take hundreds of thousands of dollars and two years or more to fund and complete. This situation is not manageable and does not provide modern "hands on" applied instruction or the types of sophisticated research that is required today and in the future.

Here are some of the major issues with current building system utilities:

1. Fume hoods\ventilation: Much more chemistry is done in the Material Sciences than ever before. The number one request from the faculty is for more six foot fume hoods. The current number of hoods in Steidle Building is insufficient and the mechanical and ventilation systems antiquated. Many of the hoods currently in the labs are three and four feet long, but current and future research requires six foot hoods to safely house the needed equipment.

2. Electrical power: Electrical panels in some areas of the building are full. Some rooms lack adequate power for more modern research equipment and there is no

ability to add additional capacity easily. 480v power is needed in several areas for larger equipment and the building services need to be upgraded to support current equipment and planned future installations.

3. Supply water: Brown water is common when a faucet is first turned on in Steidle Building. This is defined as "turbidity" by health and safety, and goes away if the faucet is run for a while. This shows the state of the plumbing pipes in Steidle Building and this situation is unacceptable in today's research environment and for regular domestic water uses. Major water supply valves no longer work in some areas and small repairs or changes in plumbing in some areas of the building require a water shutdown of the whole building.

4. HVAC: Current HVAC units in rooms are over twenty years old. Leaking coils are a too frequent problem; endangering expensive equipment and research. Many labs and offices have inadequately sized units and cannot heat properly in the winter. In the summer, heat is a problem throughout the building and humidity affects research in many labs. Many groups have to suspend research activities during the warmest weeks of the summer because of the poor control of the environment.

A listing of all known building deficiencies and code requirements is included in the appendix as provided by an ISES audit of the building. It is known that the current deficiencies and funding needed is most likely understated to include new utilities and services not existent in the current building. The ISES report only addresses what exists in a building when audited, not what is needed for the current occupants and programs. The ISES summary is included in the appendices and identifies the major building deficiencies. The summary costs have been inflated by 25%.

ADA accessibility assessment

The assessment of accessibility of the existing facilities concentrates on major elements only. These include:

- Accessible parking location
- Pathway from parking to accessible entrance
- Accessible entrance location
- Corridor widths and obstructions (i.e., drinking fountains)
- Doorway widths/hardware/side clearances
- Light switch mounting heights
- Restroom elements (sink heights, toilet stall dimensions, urinal/toilet seat heights, floor clearances)
- Elevator cab size

ASSESSMENT

Parking: The International Building Code (IBC), section 1106.6, requires that accessible parking spaces be "on the shortest accessible route of travel….". The closest parking space is 430'+ from the accessible entrance. A closer space can be created in Brown B without compromising the total number of spaces available. The University has taken the position that it will provide accessible spaces at buildings when the need is demonstrated. Otherwise, accessible spaces are dispersed in parking lots throughout the University.

Accessible pathway: The existing pathway, in particular adjacent to Steidle, is in need of replacement due to the unevenness of the individual concrete slabs.

Accessible Entrance: the current accessible entrance is in an out-of-the-way location with no signage identifying where it is. A more appropriate location for the entrance would be the central set of doors, proposed to become the major south side building entrance. These doors, however, are not of the required width and would need to be replaced. The stoop would have to be replaced with a level stoop and the walkway sloped to meet accessible code requirements.

Corridor widths and obstructions: corridors are adequately wide. There are two sets of fire doors within the corridors (Q003, Q202, Q203, and Q303), none which have door leafs of adequate width (30" existing). These must be replaced or removed (if code compliant).

Doorway widths/hardware/side clearances: the biggest concern with doors are the double door setups which are (2) 30" leafs and therefore non-compliant, and door hardware which must be replaced to level-handles. To a lesser extent, there are some doors of inadequate width and proper side clearances.

Light switch mounting heights: except for a half dozen, all light switches are mounted at 54" or lower to the centerline. Given that this is an existing building, the current accessibility code allows these to be at 54". Installation of occupant sensor switches eliminates the need for individuals to have to turn on the switches manually.

Restroom elements: existing First and Second Floor restrooms are accessible, with the exception of the rim height of the urinal in the Second Floor men's room. The other restrooms do not meet accessibility requirements and will need significant modifications to comply. Additional accessible restrooms may be needed due to floor-to-floor regulations. No assessment has been done regarding whether the amount of fixtures provided in the building satisfies code requirements for the occupant load.

Elevator cab size: Least dimensions are 78" wide x 51" deep. These dimensions meet the requirements for an accessible elevator cab.

The study worksheets are available, if required.

SPACE CONSIDERATIONS

Existing Uses/Proposed Uses of Spaces Table (from the Facilities Information System)

Rm #	Existing Use	ASF	Proposed Use	New ASF
UCIF spaces				
104	GP Classroom	672	**GP Classroom**	**672**
112	Gallery	2,130	**GP Classroom**	**2,130**
		2,802	**Total UCIF ASF**	**2,802**
E&MS spaces				
001	Shop	267		**267**
001B	Museum Service	385	**Storage**	**385**
002	Research Laboratory	286	**Safety and IT Office**	**286**
002A	Office Storage	257	**Safety and IT Office Storage**	**257**
002B	Staff Office	218	**MatSE Repair Shop**	**625**
004	Grad/Teaching Asst Office	400	**MatSE Repair Shop**	
005A	Grad/Teaching Asst Office	439	**Mail Room**	**439**
005	Shop	436	**Processing Lab A**	**401**
005B	Research Laboratory	108	**Processing Lab A**	
005C	Grad/Teaching Asst Office	193	**Processing Lab B**	**866**
006	Research Laboratory	558	**Processing Lab B**	
007	Research Laboratory	1,031	**Processing Lab C**	**1,461**
007A	Grad/Teaching Asst Office	103	**Processing Lab C**	
007B	Grad/Teaching Asst Office	327	**Processing Lab C**	
011	Grad/Teaching Asst Office	221	**Processing Lab D**	**710**
012	Research Laboratory	482	**Processing Lab D**	
008	Research Laboratory	993	**Structural Materials Lab 1**	**3,132**
008A	Grad/Teaching Asst Office	129	**Structural Materials Lab 1**	
008B	Research Laboratory	381	**Structural Materials Lab 1**	
009	Shop	622	**Structural Materials Lab 1**	
010	Research Laboratory	285	**Structural Materials Lab 1**	
010A	Research Laboratory	91	**Structural Materials Lab 1**	
013	Staff Office	123	**Structural Materials Lab 1**	
015	Shop	1,926	**Structural Materials Lab 1/ Structural Materials Lab 2/ Grad Student Offices**	
016	Research Laboratory	972	**Grad Student Offices**	**1,645**
016A	Research Laboratory	130	**Grad Student Offices**	
015A	Shop Service	67	**Structural Materials Lab 2**	**1,458**
017	Research Laboratory	895	**Structural Materials Lab 2**	
017A	Research Laboratory	190	**Structural Materials Lab 2**	
017B	Research Laboratory	544	**Structural Materials Lab 2**	
017C	Research Laboratory	203	**Structural Materials Lab 2**	
020	Research Equipment	230	**Microscopy Lab**	**230**
020A	Research Equipment	216	**Metallography Lab 1**	**216**
021	Research Equipment	443	**Metallography Lab 2**	**443**
022	Research Laboratory	1,986	**Advanced Mat'ls Processing**	**2,197**
022A	Research Laboratory	196	**Advanced Mat'ls Processing**	
024	Class Laboratory	825	**EME Mining and Ventilation**	**825**
024A	Research Equipment	616	**Structural Materials**	**616**
026	Grad/Teaching Asst Office	406	**Thermal Properties Lab**	**406**
027	Research Laboratory	914	**Undergrad Research Lab**	**914**

027A	Office Storage	187	**Undergrad Res Lab Sto**	**187**
027B	Office Storage	36	**Undergrad Res Lab Sto**	**36**
027C	Office Storage	163	**Undergrad Res Lab Sto**	**163**
101	Staff Office	385	**Post Doc/Visiting Fac Office**	**424**
101A	Faculty Office	188	**Faculty Office**	**188**
101B	Office Storage	19	**Post Doc/Visiting Fac Office**	
101C	Office Supplies	16	**Post Doc/Visiting Fac Office**	
102	Faculty Office	191	**Faculty Office**	**191**
103	Faculty Office	194	**Faculty Office**	**194**
105	Research Laboratory	797	**Biomaterials Lab 2**	**1,246**
105A	Research Laboratory	97	**Biomaterials Lab 2**	
105B	Research Laboratory	93	**Biomaterials Lab 2**	
105C	Grad/Teaching Asst Office	137	**Biomaterials Lab 2**	
105D	Research Laboratory	122	**Biomaterials Lab 2**	
106	Faculty Office	562	**Biomaterials Lab 1**	**1,527**
107	Grad/Teaching Asst Office	793	**Biomaterials Lab 1**	
108	Faculty Office	221	**Student Common Room**	**857**
109	Study Room	203	**Student Common Room**	
110	Study Room	209	**Student Common Room**	
111	Office Storage	83	**Student Common Room**	
111A	Gallery	118	**Student Common Room**	
113	Gallery	108	**Conference Room 1**	**108**
114	Faculty Office	78	**Conference Room 2**	**78**
115	Faculty Office	207	**Staff Office**	**207**
116	Conference Room	441	**Faculty Office**	**441**
118	Lounge/Lunch Area	214	**Fac/Staff Lounge**	**799**
118A	Faculty Office	182	**Fac/Staff Lounge**	
118B	Conference Room	239	**Fac/Staff Lounge**	
118C	Conference Room	148	**Fac/Staff Lounge**	
118D	Mail Room	68	**Copy Room**	**68**
118E	Work Room	167	**Storage**	**167**
119	Dept Computing Laboratory	857	**Dept Computing Lab**	**857**
120	Staff Office	494	**Financial Office**	**545**
120A	Staff Office	47	**Financial Office**	
121	Staff Office	241	**Reception**	**241**
121A	Faculty Office	343	**Dept Head Office**	**343**
121B	Staff Office	129	**Staff Office**	**129**
121C	Staff Office	127	**Staff Office**	**127**
121D	Office Storage	20	**Staff Office Storage**	**20**
122	Staff Office	147	**Faculty Office**	**231**
122A	Staff Office	78	**Faculty Office**	
123	Faculty Office	203	**Graduate Student Office**	**532**
124A	Faculty Office	222	**Graduate Student Office**	
124	Staff Office	370	**Faculty Office**	**273**
201	Staff Office	203	**Faculty Office**	**449**
201A	Faculty Office	241	**Faculty Office**	
202	Emeritus Faculty Office	531	**Emeritus Faculty Office**	**531**
202A	Faculty Office	202	**Faculty Office**	**202**
202B	Faculty Office	196	**Faculty Office**	**196**
203	Research Laboratory	688	**Energy Structure & Transport in Polymer**	**1,712**

			Mtls.	
203A	Research Laboratory	179	**Energy Structure & Transport in Polymer Mtls.**	
204	Research Laboratory	567	**Energy Structure & Transport in Polymer Mtls.**	
205	Grad/Teaching Asst Office	160	**Energy Structure & Transport in Polymer Mtls.**	
205A	Emeritus Faculty Office	92	**Energy Structure & Transport in Polymer Mtls.**	
206	Research Laboratory	514	**Energy & Electrochem Lab**	**1,824**
206A	Grad/Teaching Asst Office	273	**Energy & Electrochem Lab**	
207	Research Laboratory	534	**Energy & Electrochem Lab**	
207A	Grad/Teaching Asst Office	240	**Energy & Electrochem Lab**	
208	Faculty Office	221	**Faculty Office**	**221**
209	Faculty Office	203	**Faculty Office**	**203**
210	Research Laboratory	208	**Lab**	**208**
211	Grad/Teaching Asst Office	219	**Conference Room**	**219**
212	Class Laboratory	1,995	**Grad Student Offices**	**2,121**
212A	Faculty Office	118	**Grad Student Offices**	
224	Research Laboratory	201	**Post Doc/Visiting Fac Office**	**653**
225	Grad/Teaching Asst Office	442	**Post Doc/Visiting Fac Office**	
226	Research Laboratory	661	**CSPS High Perf Lab**	**2,414**
226A	Research Laboratory	391	**CSPS High Perf Lab**	
226B	Grad/Teaching Asst Office	248	**CSPS High Perf Lab**	
226C	Post-Doc Office	154	**CSPS High Perf Lab**	
226D	Grad/Teaching Asst Office	332	**CSPS High Perf Lab**	
227	Research Laboratory	756	**CSPS High Perf Lab**	
228	Research Laboratory	473	**CCMD – Comp Mtls. Design**	**1,236**
228A	Research Laboratory	154	**CCMD – Comp Mtls. Design**	
228B	Post-Doc Office	115	**CCMD – Comp Mtls. Design**	
228C	Grad/Teaching Asst Office	116	**CCMD – Comp Mtls. Design**	
229	Research Laboratory	578	**Faculty Offices**	**578**
230	Faculty Office	214	**Faculty Office**	**214**
231	Faculty Office	220	**Post Doc/Visiting Fac Office**	**220**
301	Conference Room	891	**Seminar Room**	**891**
301A	Conference Room Service	91	**Kitchen**	**91**
302	Research Laboratory	659	**General Synthesis Lab**	**845**
303	Research Laboratory	423	**New Women's Restroom**	**239**
304	Research Laboratory	708	**CSPS**	**708**
304A	Research Laboratory	141	**CSPS Research Servers**	**221**
304B	Research Laboratory	64	**CSPS Research Servers**	
304C	Research Laboratory	89	**CSPS - Genl Synthesis Lab**	**800**
305	Research Laboratory	579	**CSPS - Genl Synthesis Lab**	
305A	Grad/Teaching Asst Office	137	**CSPS - Genl Synthesis Lab**	
306	Research Laboratory	450	**CSPS - SCL**	**888**
306A	Research Laboratory	327	**CSPS - SCL**	
307	Research Laboratory	117	**CSPS - SCL**	
308	Research Laboratory	374	**CSPS - SRPP**	**888**
308A	Research Laboratory	246	**CSPS - SRPP**	
309	Faculty Office	215	**Faculty Office**	**215**
310	Faculty Office	193	**Faculty Office**	**193**

311	Grad/Teaching Asst Office	203	**Lab Darkroom**	**469**
312	Grad/Teaching Asst Office	275	**Lab Darkroom**	
313	Grad/Teaching Asst Office	127	**Grad Student Office**	**2,158**
314	Research Laboratory	277	**Grad Student Office**	
315	Grad/Teaching Asst Office	137	**Grad Student Office**	
316	Research Laboratory	486	**Grad Student Office**	
316A	Grad/Teaching Asst Office	182	**Grad Student Office**	
316B	Grad/Teaching Asst Office	167	**Grad Student Office**	
317	Research Laboratory	526	**Grad Student Office**	
318	Research Laboratory	204	**Conference Room**	**204**
319	Faculty Office	209	**Post Doc/Visiting Fac Office**	**209**
320	Faculty Office	196	**Faculty Office**	**196**
321	Faculty Office	242	**Faculty Office**	**242**
322	Research Laboratory	855	**CSPS - HPPS**	**1,874**
323	Research Laboratory	261	**CSPS - HPPS**	
324	Grad/Teaching Asst Office	517	**CSPS - HPPS**	
324A	Research Lab Svc	17	**CSPS - HPPS**	
325	Faculty Office	277	**Faculty Office**	**277**
325C	Faculty Office	249	**Faculty Office**	**249**
325D	Faculty Office	234	**Faculty Office**	**234**
326	Emeritus Faculty Office	216	**Post Doc/Visiting Fac Office**	**216**
327	Research Laboratory	492	**CSPS – HPPP&C**	**687**
327A	Post-Doc Office	187	**CSPS – HPPP&C**	
328	Research Laboratory	175	**CSPS – HPPP&C**	**593**
329	Research Laboratory	411	**CSPS – HPPP&C**	
330	Grad/Teaching Asst Office	218	**Post Doc/Visiting Fac Office**	**332**
330A	Emeritus Faculty Office	109	**Post Doc/Visiting Fac Office**	
		54,830	**Total College of E&MS ASF**	**55,078**[1]
Building Support spaces				
001A	Janitorial Room	165	**Janitorial Room**	**165**
J025	Janitorial Room	13	**Janitorial Room**	**13**
J121	Janitorial Room	13	**Janitorial Room**	**13**
J228	Janitorial Room	13	**Janitorial Room**	**13**
J327	Janitorial Room	13	**Janitorial Room**	**13**
T223	Telecommunications Closet	208	**Telecommunications Closet**	**208**
		425	**Total Building Support ASF**	**425**
New Construction				
			Storage and Delivery 1	**631**
			Storage and Delivery 2	**742**
			Total New Construction ASF	**1,373**
TOTAL BUILDING				
				59,678

[1] Variation due to Inclusion of proposed demolished wall square footage

Space Profile Table (proposed # of spaces and floor relationship)

Proposed Spaces	Proposed Floor	Quantity	ASF/ Space	Total ASF Req'd
General Purpose Classroom	1	2	672 2,130	2,810
EMS Program				
Processing Lab	B	4		2,992
Service Entrance and Storage (new sf)	B	2		1,373
MatSE Repair Shop	B	1	623	623
Safety and IT Office	B	1	282	282
Structural Materials Labs	B	3		5,189
Graduate Student Offices	B,1,2,3	4		6,470
Microscopy Lab	B	1	230	230
EME Mining & Ventilation Lab	B	1	825	825
Thermal Properties Lab	B	1	404	404
Metallography Lab	B	2		659
Undergraduate Computer Lab	1	1	859	859
Undergraduate Research Lab	B	2		3,096
Faculty/Staff Lounge w/kitchen	1	1	1,062	1,062
Biomaterials Lab	1	2		2,827
Student Common Room	1	1	849	849
Department Head Office	1	1	342	342
Faculty Office	1,2,3	22		5,241
Emeritus Faculty Office	2	1	534	534
Staff Office	1	2		2,113
Post Doc Office	1,2,3	6		2,031
Seminar Room w/kitchen	3	1	812	812
Shared Research Lab	2	1	208	208

Conference Room	1,2,3	4		625
Energy Structure and Transport in Polymer Materials Lab	2	1	1,457	1,457
Energy and Electrochemical Lab	2	1	2,191	2,191
Center for Computational Materials Design	2	1	1,219	1,219
CSPS High Performance Polymers and Composites w/server room	2,3	6		8,526
General Synthesis Lab	3	2		1,708
Lab Darkroom	3	1	492	492
Building Mailroom	B	1	439	439
Sub-Total				55,678
Janitorial breakroom	B	1	165	165
Janitorial closet	B,1,2,3	4	13	52
Telecommunications closet	2	1	208	208

Steidle Building Proposed Space Summary by Floor

	Number	Basement	1st	2nd	3rd	Total
Classrooms			2,810			672
Class Labs		825		1,995		2,820
Faculty Offices			1,822	3,610	2,727	8,159
Open/Special Class Labs			857			857
General Use			853			853
Research Office		2,861	2,084	927	1,563	7,435
Research Labs		11,750	1,109	5,904	7,881	26,644
Administrative Offices		341	1,841	203	982	3,367
Public Use/Performance		385	2,356			2,741
General & Admin Support		3,318	766			4,084
Total		19,480	12,360	12,639	13,153	57,632

Steidle Building Occupants

Client	Count
Faculty	30
Staff	13
Graduate Assistants	83
Post Docs	7
Researchers	38
Emeritus Faculty	5
Shop	3
Total	179

SITE CONSIDERATIONS

SITE

No changes to the site are currently planned. Certain elements need improved/replaced due to age. In the event an accessible main entrance is developed, OPP-Campus Planning and Design will need to be directly involved due to the historic importance of this facility and its contribution to the fabric of the Campus.

PEDESTRIAN AND VEHICULAR ACCESS AND PARKING

No changes are currently being proposed to either vehicular access or parking. Pedestrian access will be modified at the rear entry and if accessibility is incorporated into the main entry.

ZONING AND PERMITTING

The existing uses will continue in this building, and are approved uses for this district. The OPP-Energy and Engineering Division will have to be consulted regarding and=y environmental permitting required due to the nature of activities and materials proposed.

UTILITY REQUIREMENTS

(Utilities narrative)

SPECIAL SITE CONSIDERATIONS

No special site considerations are anticipated other than those already identified.

APPENDICES

Appendix A: Dean Edward Steidle

Edward Steidle, son of Michael and Ellen Eck Steidle, was born in Williamsport, Pennsylvania in 1887. His father was a stern, but fair man who taught his children they could have anything they might want, including toys, if they were willing to earn half the amount of the article. The strong work ethic that he instilled in his children prompted Edward to take on a series of odd jobs to earn money at a young age. While a high school student, Edward worked part-time for the Central Pennsylvania Lumber Company, an experience that introduced him to the many hazards and accidents that were all too common to that business. This experience made him a champion of worker safety for the rest of his career.

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

Steidle graduated from Williamsport High School in 1907 and enrolled at the Pennsylvania State College. His father encouraged him to major in mechanical engineering, but after making friends with several mining engineering majors he decided to pursue that field instead. He graduated in 1911 and took a job as a miner and mill man with the Socorro Mining Company in Mogollon, New Mexico.

In 1912, fellow alums George Deike and John T. Ryan encouraged Steidle to apply for a job with the US Bureau of Mines where they were working. Steidle was hired as a foreman miner. His main responsibility was mine safety where he conducted investigations of mining accidents, collected data for the bureau and taught mine safety. He made some of the earliest known safety films and traveled around the country with his assistants in converted Pullman railroad cars equipped with scientific instruments. Steidle was soon promoted to Junior Mining Engineer as a result of "his ability to establish agreeable relations with both miners and operators, his success in gaining the cooperation of mine officials, and his exceptional ability as a teacher."

In 1914 Steidle earned a second degree as Engineer of Mines. He was promoted again in 1915 to Assistant Mining Engineer. He was sent to San Francisco as part of a team to install an exhibit at the Panama-Pacific International Exposition. For the Palace of Mines and Metallurgy, they created "The Mine," a simulated coal and metal mine, which was "the first exhibit of its kind in the United States." Steidle proved to be a skilled promoter, with a flair for dramatic showmanship by developing a program of daily stunts in order to attract people to the exhibit. Each show began with the sound of a loud explosion coming from inside the exhibit. Promptly a rescue truck would race to the scene with bells clanging. A team would rush into the mine emerging moments later carrying the "victim" on a stretcher who would be revived by artificial respiration and first aid. Steidle was commended by the bureau's director for the success of the exhibition.

A promotion in 1916 sent Steidle to the bureau's headquarters in Washington, DC to work as assistant to the chief mining engineer. The following year he was appointed mining engineer and placed in charge of the Utah-Nevada-California district. He held this position until the US entered World War I and commissioned him as a first lieutenant in the army sending him directly to the French front. Steidle served his country until his discharge in 1919. The war earned him a Purple Heart for his service, but that came at the cost of his right eye when a German shell exploded.

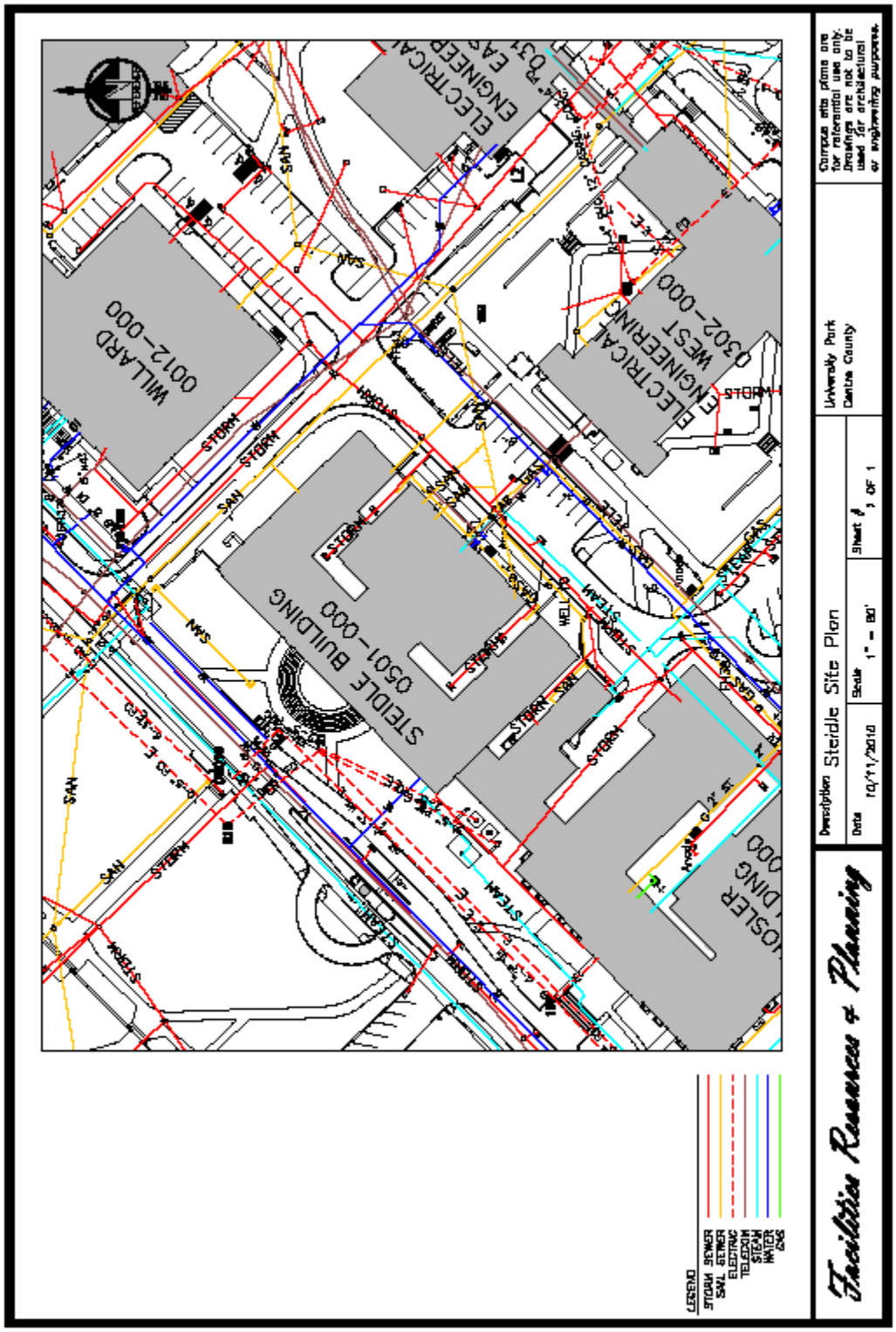
Following his discharge from the service, Steidle began his career in education by accepting a position as associate professor of mining engineering at the Carnegie Institute of Technology in Pittsburgh. Realizing the need for close contact between educational institutions and the industries they served, he reorganized the curriculum and became a great promoter of industry and education. He implemented one of the first cooperative ventures of industry-supported research in the country. Steidle established graduate research fellowships in mining, fuel technology, and ferrous metallurgy. Carnegie Tech provided the classrooms, the Bureau of Mines contributed laboratories and Pittsburgh area industries donated funds to support student research and publication.

In 1928 Steidle was lured away from his position as head of the Department of Mining at the Carnegie Institute of Technology in Pittsburgh to become dean of Penn State's School of Mining and Metallurgy. Several members of the board of trustees strongly recommended him to President Hetzel. Industry heads supported his appointment as well as Penn State alumnus A.S.Wilson of the Cosgrove-Meehan Coal Company of Johnstown who praised his "business instincts, energy and common sense."

Steidle established an art gallery as part of his vision for the newly created School of Mineral Industries in 1929. The Mineral Industries Library was created in 1930 from a collection of approximately 1,000 books from his office.

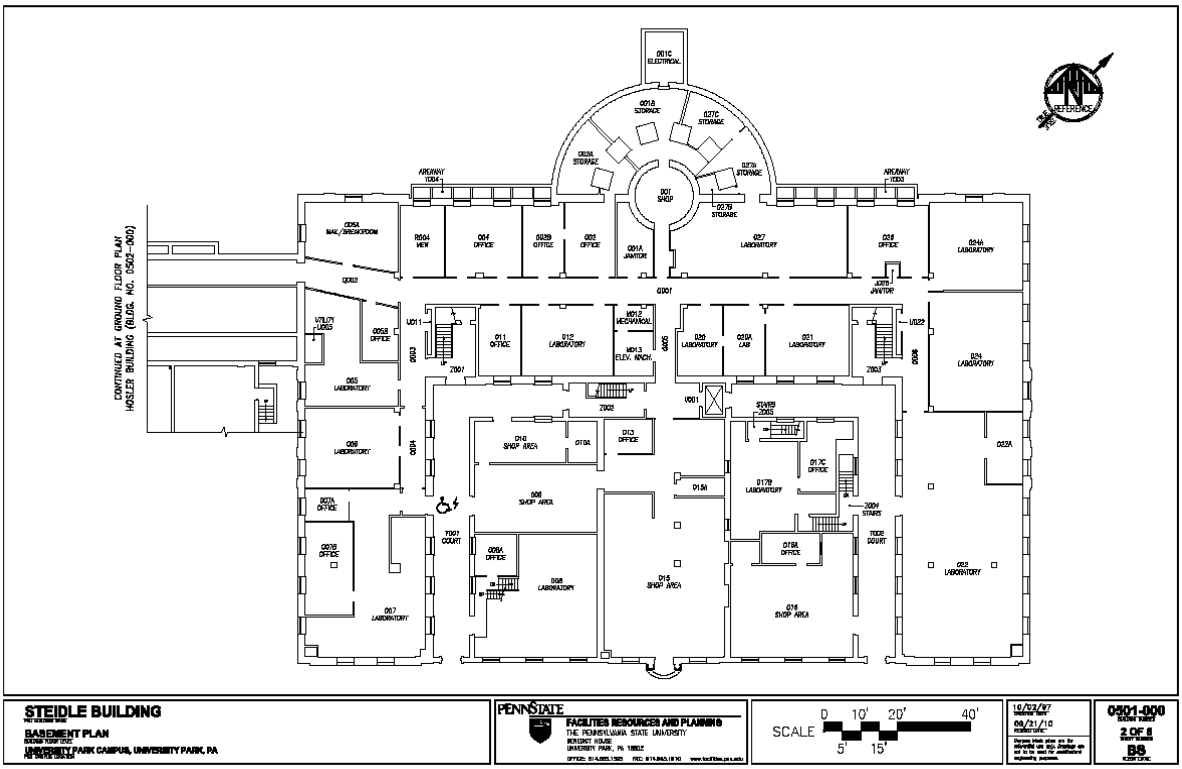
In 1953, Dean Steidle retired after 25 years as dean of the School of Mineral Industries at The Pennsylvania State University. In 1977, we lost this industrious icon when he died at the age of ninety.

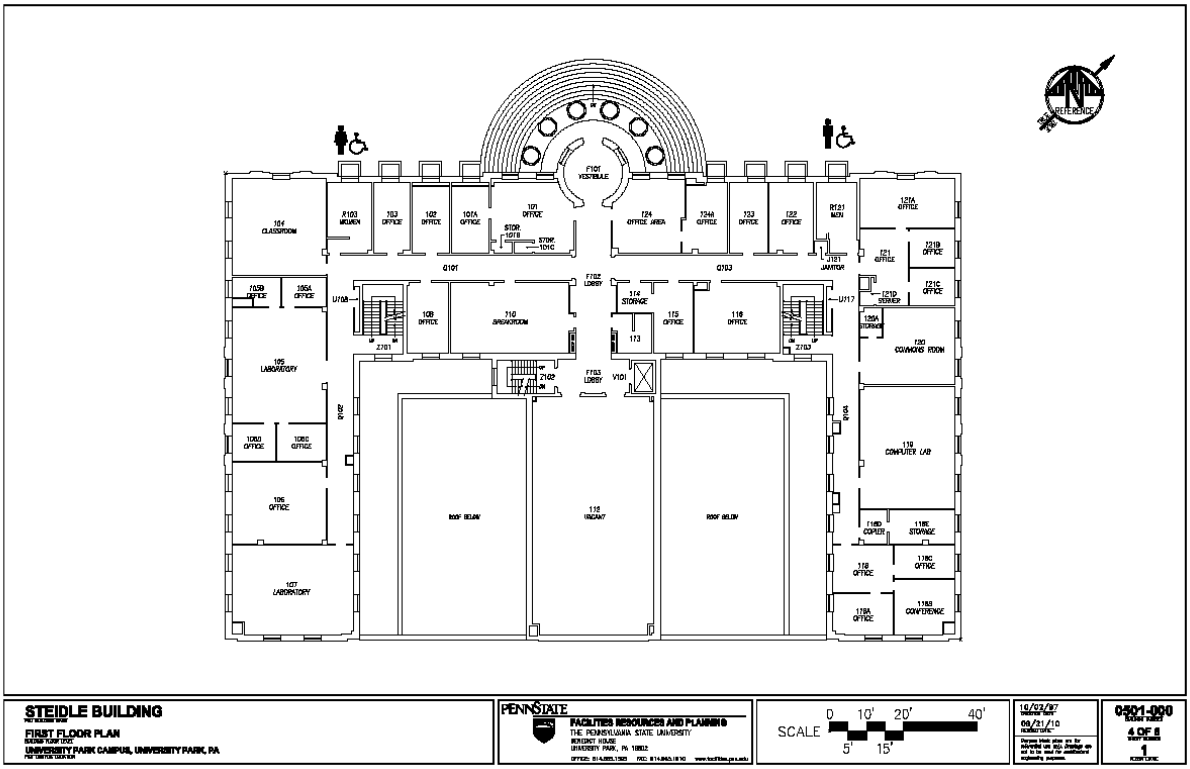
Appendix B: Site Plan with Utilities
Drawing is available in .pdf upon request.

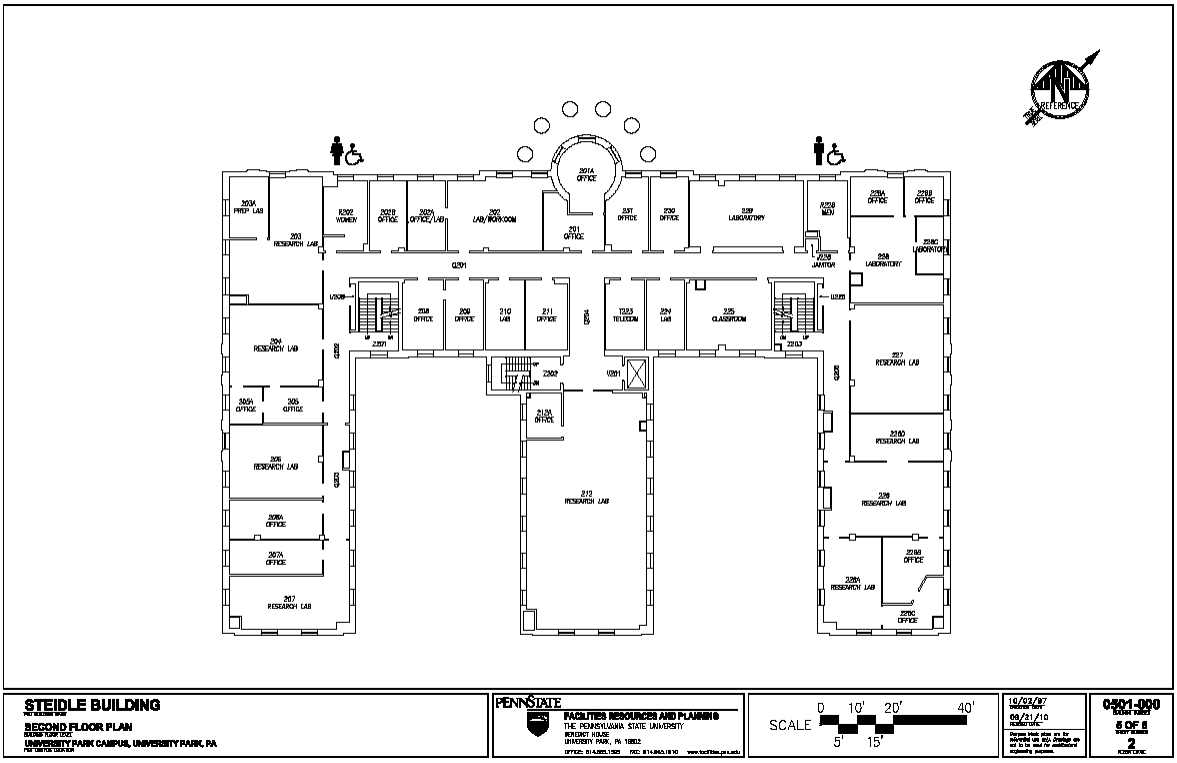


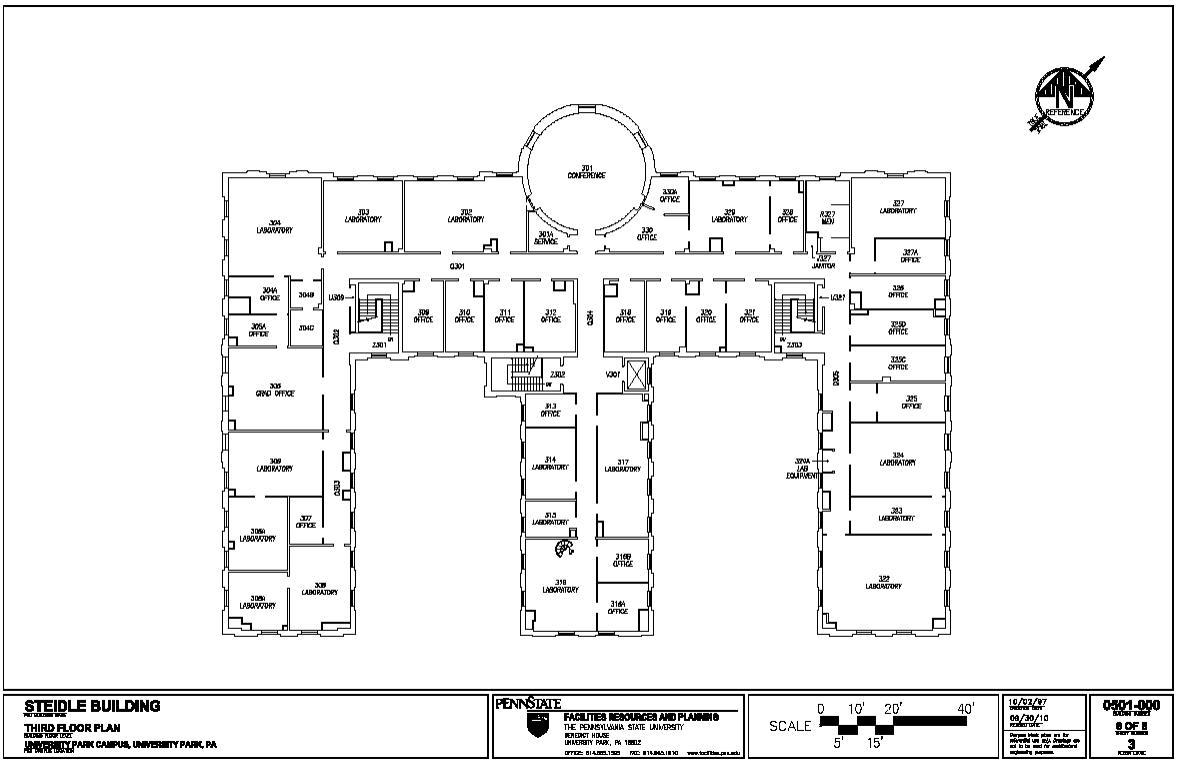
Appendix C: Existing Building Plans

Drawings are available in .pdf upon request.









Appendix D: Proposed Space Use Plans

Steidle Building
Building No. 0501-000

College: College of Earth & Mineral Sciences
Function: Multipurpose Building
Gross Sq Ft: 85,917 sf
Assign Sq Ft: 57,612 sf
Year Built: 1931
Status: Active

STEIDLE BUILDING

BUILDING NO. 0501-000

NORTH

DEMOLISHED WALLS
NEW WALLS

EMS MAILROOM
MINE RESTRICTION
MoESE REPAIR SHOP
SAFETY & IT OFFICE
UNDERGRADUATE RESEARCH LAB
THERMAL PROPERTIES LAB
STRUCTURAL MATERIALS
STRUCTURAL MATERIALS
PROCESSING LAB
MICROSCOPY LAB
METALLOGRAPHY LABS
EME MINING AND VENTILATION LAB
SERVICE ENTRANCE & STORAGE
SERVICE ENTRANCE & STORAGE
PROCESSING LABS
STRUCTURAL MATERIALS
STRUCTURAL MATERIALS
UNDERGRADUATE LAB FOR ADVANCED MATERIALS PROCESSING
GRAD STUDENT OFFICE

Basement Plan
not to scale

PROPOSED LAYOUT

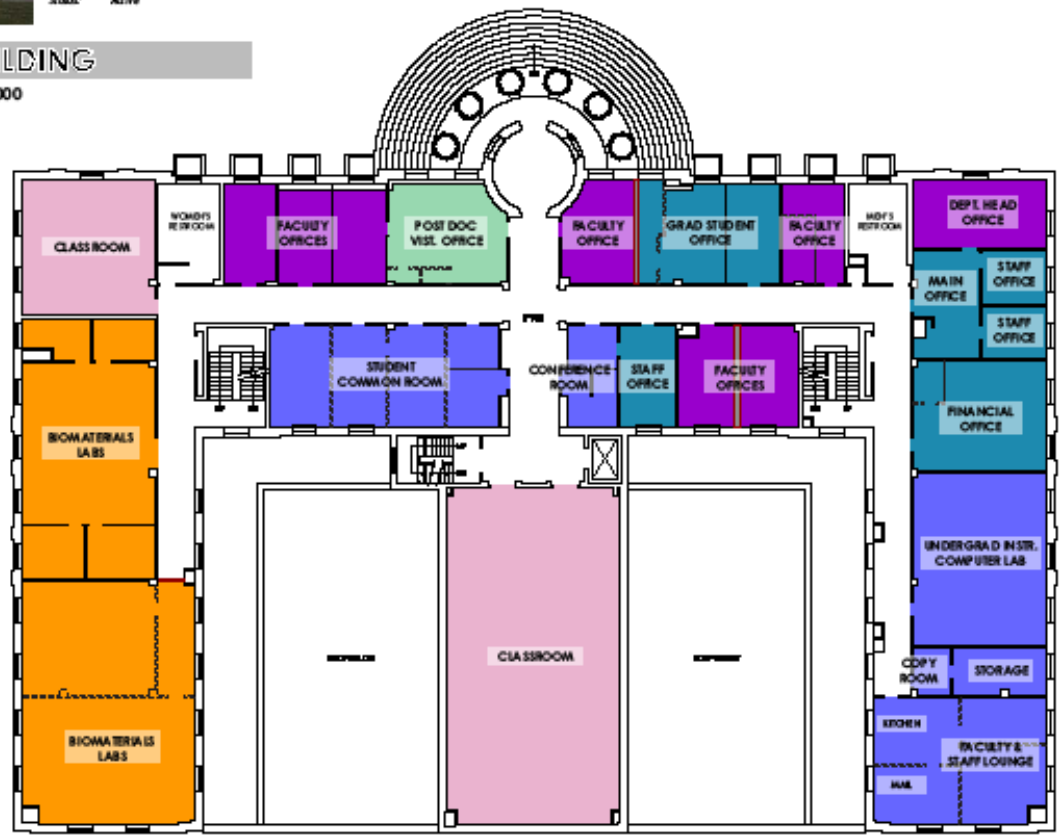
OCTOBER 2010

Steidle Building
Building No. 0501-000

College: College of Earth & Mineral Sciences
Function: Multi purpose Building
Gross Sq Ft: 85,917 sf
Assign Sq Ft: 57,612 sf
Year Built: 1931
Status: Active

STEIDLE BUILDING

BUILDING NO. 0501-000



First Floor Plan

not to scale

PROPOSED LAYOUT

OCTOBER 2010

Steidle Building
Building No. 0501-000

College: College of Earth & Mineral Sciences
Function: Multi purpose Building
Gross Sq Ft: 85,917 sf
Assign Sq Ft: 57,612 sf
Year Built: 1931
Status: Active

STEIDLE BUILDING

BUILDING NO. 0501-000

NORTH

DEMOLISHED WALLS
NEW WALLS

Second Floor Plan
not to scale

PROPOSED LAYOUT

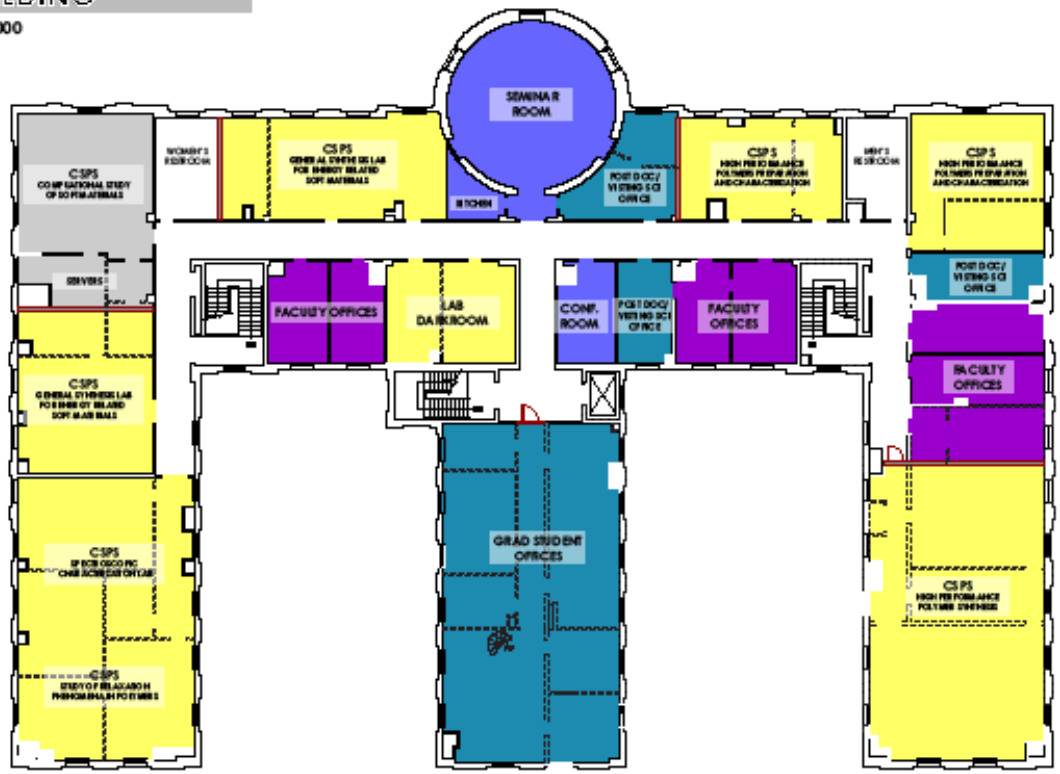
OCTOBER 2010

Steidle Building
Building No. 0501-000

College: College of Earth & Mineral Sciences
Function: Multi purpose Building
Gross Sq Ft: 85,917 sf
Assign Sq Ft: 57,612 sf
Year Built: 1931
Status: Active

STEIDLE BUILDING

BUILDING NO. 0501-000



DEMOLISHED WALLS
NEW WALLS

NORTH

Third Floor Plan
not to scale

PROPOSED LAYOUT

OCTOBER 2010

Appendix E: ISES Facility Condition Analysis

The following are excerpts from the full report. The full report is available in .pdf format upon request.

Detailed Project Totals
Facility Condition Analysis
System Code by Priority Class
0501-000 : STEIDLE BUILDING

System Code	System Description	Priority Classes 1	2	3	4	Subtotal
AC	ACCESSIBILITY	0	0	222,051	0	222,051
EL	ELECTRICAL	0	0	1,991,139	94,666	2,085,805
ES	EXTERIOR	0	0	636,268	0	636,268
FS	FIRE/LIFE SAFETY	0	29,231	226,198	1,005,914	1,261,343
HV	HVAC	0	0	7,389,241	0	7,389,241
IS	INTERIOR/FINISH SYS.	0	0	1,722,791	881,613	2,604,404
PL	PLUMBING	0	0	2,473,241	598,043	3,071,284
SI	SITE	0	0	0	9,496	9,496
	TOTALS	$0	$29,231	$14,660,929	$2,589,732	$17,279,892

Facility Replacement Cost	$25,960,699
Facility Condition Needs Index	0.53

Gross Square Feet	85,917

Total Cost Per Square Foot	$201.12

PENNSTATE

Office of Physical Plant
Energy and Engineering Division
Engineering Services

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

SCOPING DOCUMENT
STEIDLE BUILDING – RENOVATION
0501-00

DATE: January 10, 2011

FROM: Ian Salada

TO: Lisa Berkey

This memo describes the utility and building system requirements of the Renovation to the Steidle building at the University Park Campus. The area of work is approximately 57,632 assignable square feet. As part of this project, existing systems within the Steidle Building will be renovated and updated.

DESIGN STANDARDS

All aspects of the design must conform to the University's Design Standards, which can be found on the OPP website (http://www.opp.psu.edu/planning-construction/design_and_construction_standards/standards-and-forms).

The Design Professional team shall coordinate efforts in an iterative process to apply holistic, sustainable design principles to the renovated spaces. The design shall meet the architectural functional and aesthetic objectives, help achieve comfortable and pleasing indoor environmental conditions with effective combined use of passive elements, and be purposefully integrated with the HVAC and lighting systems so that all work effectively together to minimize dependence on non-renewable energy use and associated ownership and operating costs for the life of the building.

Energy Conservation:

The University's overall energy performance objective is that all facilities shall achieve a minimum of at least 30% energy savings over the latest version of the ASHRAE 90.1 standard as defined in 01 81 13 Sustainable Design Requirements. The Design Professional shall strive to obtain that result by combining innovative design along with latest version of ASHRAE Standard 189.1 Standard for the Design of High-Performance Green Buildings. This standard contains advanced, high-performance building prescriptive compliance methods recognized and accepted within the industry. For a partial renovation of a facility, the Professional shall submit a report with quantitative analysis including simplified energy simulation calculations to document how the proposed design contributes toward meeting that goal.

The simplest and most effective method of energy conservation is to turn things off when not in use. To this end, spaces with similar occupancy schedules should be grouped together, to the extent possible, on the same HVAC system, to accommodate unoccupied shutdown.

Design for Completeness:

All projects are expected to be complete at their conclusion, meaning that the project generates no need for additional efforts beyond the planned scope. Above all, the campus maintenance staff is not available to complete projects or provide remedies to problems caused by the project.

Other Resources:

Whole Building Design Guide
http://www.wbdg.org/design/academic_lab.php

The following OPP Engineering Services resources page lists useful links and references for additional generally recognized, industry-wide design guidance: http://www.opp.psu.edu/about-opp/divisions/ee/engineering/eng-resources/bldg-mech

ENVELOPE

The consultant shall roughly approximate the existing envelope insulation values. Envelope upgrades are recommended if the existing insulation values are determined to be significantly lower than the prescriptive values listed latest version of ASHRAE Standard 189.1 Standard for the Design of High-Performance Green Buildings.

21 00 00 FIRE SUPPRESSION

A fire sprinkler system shall be provided throughout the renovated Steidle Building in accordance with NFPA and FM. The new system shall be a wet-pipe system, with zones and standpipes as appropriate. A new backflow preventer shall be provided for the new sprinkler system on the combined water service.

22 00 00 PLUMBING

In general, plumbing systems, materials, and fixtures shall comply with the University design standards.

The building's existing hot and cold domestic water piping has deteriorated to the point that it is negatively impacting the building's water quality. It is for this reason that the existing hot and cold domestic water piping downstream of the main backflow preventers should be replaced in its entirety.

The condition of all other service piping within the building that is being considered for re-use including sanitary, lab gases, lab waste, and process water systems must be determined by the consultant, with findings presented in writing to the PSU Project Manager. Piping that is determined to be deficient should be removed.

Plumbing fixtures shall be low consumption type. Urinals shall be pint flush. Women's water closets shall be dual flush type.

All special plumbing systems required for the programs and processes in the building (such as emergency fixtures, lab gases, lab waste, and process water systems) shall be coordinated with University personnel. Where processed water distribution systems are required, water stills utilizing steam shall not be used due to the high steam demand requirements and the associated impact on the campus steam distribution system. Alternate water purification systems, such as reverse osmosis, shall be used. All special plumbing systems and fixtures shall be reviewed with both the building Users and the Office of Physical Plant, Engineering Services.

Domestic water must not be used to provide process cooling in a 'once-through' manner.

23 00 00 HEATING, VENTILATING, AND AIR-CONDITIONING (HVAC)

The building's existing HVAC system is comprised as follows: 4-pipe fan coil units provide individual zone temperature control. Variable volume roof mounted makeup air units provide ventilation air to each fan coil through laboratory supply boxes and hard ducted connections. The makeup air units are equipped with hot water coils, but no cooling coils. The building also contains three (3) small constant volume air handlers that provide comfort cooling to parts of the building. Numerous individual roof mounted exhaust fans serve fume hoods throughout the building. A steam fired shell and tube heat exchanger generates hot water for both Hosler and Steidle Buidlings. Twin 150 ton centrifugal chillers generate chilled water for both Hosler and Steidle Buildings. Automated Logic controls serve the makeup air units and air handlers.

For the most part, the building's fan coil units and exhaust fans were installed in 1985 and are beyond their expected service life. The makeup air units were installed in 2007.

Under this building renovation, the existing fan coil units, exhaust fans, makeup air units, and chillers are to be demolished. New central system variable air volume (VAV) air handling units shall be utilized for heating, ventilating, and air conditioning. Where possible, the air handling units should be located indoors. Air handlers serving lab laboratory/critical spaces shall serve only critical spaces. Offices and similar non-critical spaces shall be served by air handler(s) separate from the laboratory air handlers. Adequate service space shall be provided around and within air handlers to allow for proper maintenance of the equipment. Designs that de-couple sensible and latent loads in order to minimize supply airflows (e.g. chilled beams) could be considered if their winter chilled water requirements are low enough.

Laboratory spaces should be 'modular' in layout to allow flexibility in future renovations to meet researcher requirements. Main ducts, piping mains, VAV terminals and other HVAC equipment requiring periodic maintenance should be located within utility corridors or similar areas to minimize disruption of research spaces. Supply VAV terminals shall be provided with hot water heating coils for winter heating and summer reheat control. A dedicated VAV terminal and thermostat shall be provided for each office or laboratory. Spaces shall not be "ganged together" on a single VAV terminal without prior approval from the Office of Physical Plant, Engineering Services.

All occupied areas shall be provided with mechanical ventilation to meet the latest ASHRAE standard. Economizer operation shall also be provided to allow the use of outside air for cooling when appropriate. Air handlers shall have mixing and blending devices/sections and adequate length to prevent air stratification and nuisance tripping of freezestats.

Humidity control may be required in various areas of the building. Summer dehumidification shall be accomplished through the use of hot water reheat coils associated with the VAV boxes. Winter humidification, if required in critical areas of the building, shall be accomplished by direct injection of campus steam in the main supply ducts or air handling units. Humidification shall not be provided to office areas.
Terminal units such as fan coil units or unit ventilators shall not be considered for this building. Equipment that requires chilled water for cooling in the winter shall not be used, unless approved by the Office of Physical Plant, Engineering Services.

Fume hoods shall be variable volume type and shall have controls to monitor sash position, face velocity and the presence of a fume hood operator. The fume hoods shall have visible and audible alarms to annunciate a loss of airflow. The central fume exhaust system(s) shall vary airflow based on space occupancy and the face velocity requirements and sash position at each hood. Control of the fume exhaust system shall interface with the supply air system controls to ensure the proper flow of air from clean spaces to less clean spaces. High efficiency, low flow, constant volume fume hoods are also acceptable option.

Heat recovery systems shall be installed to recover energy from the general exhaust systems of the building for use in tempering outdoor make-up air.

CHILLED WATER COOLING

Building will be cooled using campus chilled water generated at the central chiller plants. New chilled water piping shall be routed from the central chilled water mains into the mechanical room of each building. Both Stiedle and Hosler buildings shall contain secondary chilled water pumps, and secondary chilled water piping shall be distributed from the mechanical room throughout the building. Chilled water control valves shall be 2-way, proportional. Secondary chilled water pumps shall be provided with variable frequency drives (VFD's) to reduce pumping energy during periods of low cooling loads. A winter cooling pump and full size bypass line and meter shall be installed per the University's standard connection detail. Refer to the 'Energy Metering' section below. The piping connection to the campus chilled water system shall follow the University's connection detail, available from the Office of Physical Plant, Engineering Services.

If any spaces in the building are critical enough to require redundant cooling sources, the back-up cooling system shall be closely coordinated with the University and approved by the Office of Physical Plant, Engineering Services during the building design.

Equipment and processes must not utilize domestic water in a 'once-through' cooling manner. Mechanical process cooling systems must be provided to serve any process load. For more information related to chilled water, refer to the utility section of this document.

HOT WATER HEATING

The building is currently supplied with low pressure steam from the campus distribution system. A steam meter shall be provided in each building on the incoming steam service to report flow, pressure, temperature, and total usage; refer to the 'Energy Metering' section below. All steam condensate shall be returned to the campus steam plant. Condensate return pumps shall be air pressure powered, using compressed air from the campus system.

The building shall be heated using hot water generated from a low pressure steam/water converter located in the mechanical room of the building near the incoming campus steam. Converter shall be shell and tube type. Two converters, and multiple pump systems should be provided to allow for back-up and the operation of different water temperatures, different systems, and different areas in each building as appropriate. Systems should be segregated into various zones, if applicable, and summer reheat services. The new hot water system shall serve new heating coils in air handling equipment, reheat coils on VAV boxes, and new terminal heating devices. Heating control valves shall be 2-way, proportional. Heating pumps shall be provided with variable frequency drives (VFD's) to accomplish flow variation in the system.

25 00 00 INTEGRATED AUTOMATION (BUILDING AUTOMATION SYSTEM – BAS)

The existing building automation system (BAS) is a mixture of Staefa and some Automated Logic. All new BAS work shall be direct digital control (DDC) and shall communicate at the building level using BACnet protocol. Automated Logic Corporation (ALC) is the only automation control systems acceptable for use at the building level. The new BAS shall be integrated into the existing University's Central Control System 'front-end' graphic user interface software. The University's standard BAS guide specification shall be used and edited as appropriate; no other BAS specification is acceptable. All third party equipment that is supplied with an on board controller, such as VFDs, etc., shall be specified to have a BACnet interface supplied by the equipment manufacturer. All aspects of the BAS shall be closely coordinated with the University and approved by the Office of Physical Plant, Engineering Services during the building design.

The BAS shall provide interval trend data to the campus Enterprise Utility Management System (EUMS) via Bacnet communication; refer to the 'Energy Metering' section below.

26 00 00 ELECTRICAL

POWER
The existing electrical switchboard shall be replaced with a lineup of drawout type switchgear, to improve maintenance and reliability. A dedicated electrical room must be provided, the size of which will be dependent on the number of service voltages. The existing emergency automatic transfer switch and associated distribution panel board shall be replaced. All existing power risers and panelboards shall be replaced. Additional floorspace is required as the user requests 480Y/277V in addition to the 208Y/120V. Mechanical equipment and lighting shall be fed at the higher voltage as much as feasible.

ELECTRICAL METERING
Provide provisions for electrical metering to monitor building power conditions and consumption. The meter shall be furnished and installed by PSU. Provisions include a isolated compartment integral to the electrical service entrance equipment. This compartment shall include CT's on a shorting block and a potential connection brought to a fuse block with integral disconnect. Compartment shall accept a Square D circuit monitor style meter. Provide data connection, including Square D ECC Ethernet communications card, from the meter location back to the nearest data closet (to be landed at the CCS data switch). A BAS connection to electric meters is not required, energy data will be transferred directly from the campus Square D network to the EUMS for consumption and demand reporting.

LIGHTING
Luminaries shall be linear fluorescent or LED. Fluorescent should be the 48" linear T8 lamp, confirm whether to utilize the "high lumen" or "energy saving extra-long life" version with Engineering Services. Ballasts shall be NEMA "premium" efficiency, parallel operation, program-rapid start (except for unswitched normal/emergency lighting which shall be instant-start, parallel operation).

Daylight harvesting of offices, classrooms, and similar spaces shall be accomplished with 0-10V controlled dimming ballasts, 5%-100% output. Daylight harvesting of lobbies, corridors, etc. shall use simple on/off control (possibly built into the local occupancy sensors). Consultant shall investigate the use of exterior shading devices (to minimize direct glare and solar heat gain), interior light shelves, and skylights or (preferably) north-facity clerestories.

LED source shall be used for decorative, downlight, and wallpack luminaires. Interior luminaire color temperature shall be 3500K, with a CRI of 80+, and a minimum efficiency of 60 lumens/watt. Exterior color temperature shall be 4100K, with a CRI of 70+, and a minimum efficiency of 60 lumens/watt. Minimum L_{70} fixture life shall be 50,000 hours.

Provide stand-alone occupancy sensing for all spaces. Stairway luminaires shall utilize fixture-mount sensors with step-dim ballasts. Sensors to have daylight function and HVAC output relay.

Refer to Design and Construction Standards for further requirements.

27 00 00 COMMUNICATIONS

Refer to the PSU TNS (Office of Telecommunications and Network Services) Minimum Standards for Telecommunications Facilities for requirements.

28 00 00 ELECTRONIC SAFETY AND SECURITY

Penn State requires security access control on all new and renovated buildings. Refer to Penn State's Policy SY 33 ELECTRONIC SECURITY AND ACCESS SYSTEMS and SECURITY ACCESS CONTROL SPECIFICATIONS. Contact Ed Gannon at ejg3@psu.edu for guidance on applying these to the project.

Access Controls:
Electronic Access Controls will be required in order for project to be Policy AD-65 compliant. Access controls will include, but not be limited to, all perimeter doors & telecom doors. A Security Assessment will be performed in order to determine if additional access control measures are required.

Surveillance:
Surveillance cameras will be required in order for project to be Policy AD-65 compliant. Surveillance cameras will be required on all perimeter doors equipped for card access or electronic access control. Cameras will cover both ingress and egress. A Security Assessment will be performed in order to determine if additional electronic surveillance is required.

Other Electronic Security:
A Security Assessment will determine if there is a requirement for other electronic security such as; intrusion alarm, duress alarm, device tamper alarms, etc.

28 31 00 FIRE DETECTION AND ALARM

The current XL3 panel handles 3 buildings (Deike, Steidle and Hosler). The panel is in Hosler. Full fire alarm system replacement is scheduled for all three of these buildings.

University Park systems shall be compatible with, and able to report to and be controlled by, the Siemens Pyrotronics CXL Fire Command Center used by University Police Services.

For fire alarm related inquiries please contact PSU Electronics Engineer, Scotty Eble at (814) 865-1627.

33 00 00 UTILITIES

All new construction or renovation projects which necessitate modification of or an addition to existing utility systems must be coordinated with and approved by Engineering Services in the Utilities Division of OPP.

Any expansion or renovation of conditioned space must include an assessment of the adequacy of the utilities infrastructure.

The Utility Demand and Consumption form (See 00 51 00 Miscellaneous Forms) shall be completed by the Professional for every project. The information will be used to evaluate the impact on the existing distribution systems, and to request operating funds for the facility. The consumption data should be estimated as accurately as possible, and provided with the final design submission.

DOMESTIC WATER AND FIRE SERVICE

The Steidle Building's water service has had two new 3" Conbraco RPZ Backflow Preventers and new 3" Neptune Compound Meter installed under the DGS Backflow Preventer Project. Our mapping shows that the building's water service is 6" The piping is less than 20 years old. The plumbing "refurbishment" on the domestic supply should start after the "T" downstream of the new backflow preventers.

With respect to the water service, the only potential needs would be for fire protection system(s). If the fire protection system(s) are part of this project, a Backflow Preventer would need to be installed and should be included with the Fire System(s).

Equipment and processes must not utilize domestic water in a 'once-through' cooling manner. Mechanical process cooling systems must be provided to serve any process load.

SANITARY SEWER

No sanitary sewer utility work to support the planned renovation is anticipated at this time.

STORM DRAINAGE

While the building currently is not known to flood or have any stormwater problems, complete renovation of the building should include replacement of the rainwater conductors within building, since they are likely beyond their useful service life. There is currently a floor drain in rooms 14/15/18 that drains to the storm drain system, that needs to be redirected to the sanitary system. Additionally, there are two roof scuppers on the north side of the building that drain to the sanitary system, which should be redirected to the storm drain system if possible. Specific information on the location of these scuppers is given in a report that Nalco did for the University, which is available from Engineering Services upon request.

There are four small area drains located in the courtyards that should be inspected and replaced with new yard drains if required. Storm drains discharge primarily on the south side to an older terra cotta storm line. Any disturbance of this line by other utilities, building additions, etc. will require replacement and the same holds for the courtyard area drain lines.

NATURAL GAS

The renovation is not expected to have any requirement for natural gas.

CAMPUS CHILLED WATER COOLING

The cooling plant for both the Hosler and Steidle Buildings consists of two 150 ton centrifugal chillers located in a small mechanical room between the two buildings. These chillers must be removed under this project. Campus chilled water must be extended into the mechanical room from the 8" capped campus chilled water mains located in the service drive immediately to the south of the mechanical room. This will require that both the Hosler and Steidle buildings be converted to campus chilled water at the same time. Any terminal equipment serving Hosler that contains 3-way chilled water valves must be converted to 2-way before campus chilled water can be brought on line. Depending on the condition of the building chilled water piping in Hosler, a heat exchanger may be required. Each building will require its own separate service including separate chilled water booster pumps and chilled water meters.

STEAM

Minimum steam pressure at the connection to the building is 5 psi. No steam utility work to support the planned renovation is anticipated at this time.

cc: File

J:\Engineering Services\Buildings\0501-000 Steidle\2010 Steidle Renewal Scope Doc\Steidle Building Renovation - Scoping Document - Eng Svcs.doc

PENNSTATE

1855

NON-BINDING ARCHITECT AND ENGINEER FEE SCHEDULE

Project: Steidle Building Renovation
University Park

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 February 10, 2012 @ 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.

TABLE OF CONTENTS

12.8 Terms/General Conditions

ARTICLE 13: SCHEDULE OF EXHIBITS

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