



DATE: August 21<sup>th</sup>, 2014

SUBJECT: **Integrated Project Delivery (IPD) Engagement RFP**  
Agricultural Engineering Building Renovation  
University Park

TO: Balfour Beatty/CannonDesign/Limbach  
Ballinger/Skanska  
BLTa/Payette/Torcon  
Burns & McDonnell/Ayers Saint Gross  
DPR/EYP  
Highland/Turner  
Massaro/Bostwick  
Mortenson/ZGF  
PJ Dick/HOK  
Whiting Turner/Perkins + Will/Vanderweil

## A. INTRODUCTION

Congratulations, your team has been selected as one of the “Candidate” teams on the long list (ten teams) for the design and construction of the above referenced project. The Screening Committee will review responses to this Request for Proposal and identify a short list of three teams to be invited to the workshops and interviews.

Participation in this selection process by candidate firms shall be at no cost or obligation to The Pennsylvania State University (PSU). PSU reserves the right (a) to terminate this selection process at any time, (b) to reject any or all proposals, and (c) to waive informalities and minor irregularities in the proposals received.

## B. PROJECT OVERVIEW

### *Our Vision*

The Agricultural and Biological Engineering Department will be an international leader in providing research, education, and outreach in the most critical sustainability issues facing the global community: food production, adequate water quality and supply, energy, and biologically-based materials.

### ***Our Motivation and Growth***

The Agricultural and Biological Engineering (ABE) Department is uniquely focused on the most critical sustainability issues facing our society today. These areas will continue to grow significantly in importance over the next several decades, and both, departments and universities equipped to grow with these global needs will be positioned to lead revolutionary change in our world.

Toward that end, the department's undergraduate and graduate programs provide highly qualified engineers, systems managers, technology developers, researchers, outreach educators and university teaching faculty for Pennsylvania, the nation, and the world. The educational programs offered are the B.S. in Biological Engineering, B.S., M.S., and Ph.D. in BioRenewable Systems, and M.S. and Ph.D. in Agricultural and Biological Engineering. These programs are rooted in extensive interdisciplinary research and extension activities.

Currently, the ABE Department is home to tenured or tenure-track faculty, instructors, extension/research support staff and administrative and support staff, graduate students, and undergraduate students. This team supports the research, education, extension and outreach activities of the ABE Department, and has invested several years of detailed strategic planning to ensure continued growth of our programs and measurable impact on our society. This has resulted in the following accomplishments, which are driving the need for improved facilities:

- Undergraduate enrollment increased by 250% since 2001 and is expected to continue to grow with the introduction of the new major in BioRenewable Systems.
- ABE now supports over 40 graduate students and expects to grow by at least 50% with the new BioRenewable Systems graduate program.
- Research expenditures have grown by 100% in the past eight years and are expected to grow with several new faculty additions.
- Four faculty working in the biologically-based products area have joined the ABE department during the College of Agricultural Sciences' restructuring.
- New faculty positions anticipated in natural resource engineering, mechatronics/robotics, biological processing, and biologically-based products.
- Developed a new online professional master's program in Renewable Energy and Sustainable Systems, which will potentially increase need for additional instructors as the program grows.
- Increase in collaborative, inter-institutional research and extension projects.

### ***Renovation Goals***

Recommendations were developed internally by ABE faculty and staff and intended to be discussed collectively with the design team to help create the most productive space for ABE department research, teaching, extension and outreach activities. ABE faculty and staff are expected to work closely with design and construction personnel throughout the project. Factors important to the ABE department and that impacted the proposed organization include:

1. Build a greater sense of community and foster innovation and collaborative research and education.
2. Create a modern space, complementing the historic front portion of the building, presenting a program focused on the global future of Biological Engineering and BioRenewable Systems.
3. Substantially increase the level of natural light in office and research laboratory space where faculty, staff and students will be working for prolonged periods.
4. Design a useful main entrance with efficient traffic flow for optimal and safe use of facilities.
5. Showcase the relocated Fermentation User Facility.
6. Inspire and attract students and visitors by showcasing faculty labs (with windows from hallways) to inspire/attract students and visitors.
7. Wherever possible, co-localize complementary research and educational activities to promote collaboration and efficient use of space.
8. Achieve innovative sustainable design including the use of sustainable materials, including not only those that are FSC certified (recognized by LEED) but also those that are SFI certified.
9. Showcase a number of sustainability features which will also be integrated with department teaching, research, outreach, and industry engagement. Several options exist and we want to explore these further with the guidance of OPP and the IPD team. Some options include:
  - a. Green roof (aligns with department NRE efforts. Include monitoring via website - private and public).
  - b. Rain water capture and use (aligns with department NRE efforts).
  - c. Water conservation (aligns with department NRE efforts).
  - d. Passive solar (Link to RESS program).
  - e. Photovoltaics (Link to RESS program).
  - f. LED Lighting.
  - g. Bicycle and pedestrian access (supported by locker rooms)
  - h. Natural ventilation.
  - i. Building management system which can also be used as a teaching tool.
  - j. Use of sustainable building materials (as in Forest Resources Building).
10. Create a safe and secure working environment. This includes undergraduate and graduate student use of labs and other spaces during off hours.

### **C. PROGRAM OF REQUIREMENTS**

The Program of Requirements has been established based on the renovation goals stated in Section B and was developed through solicitation of input on an individual basis, group meetings, and broad input and approval of a final department document. Soliciting detailed space specifications on an

individual basis, allowed each faculty and staff member to develop, define and express their individual opinions on space needs associated with their use of the existing building.

In addition, soliciting detailed space specifications on a group basis was defined based on individual position responsibilities. These groups included those based on our major program areas. Each group consisted of faculty, staff and student representatives. The following is a list of working groups:

- a. Bioprocessing
- b. Bioproducts
- c. Natural resource engineering
- d. Machinery and fabrication
- e. Agricultural health and safety
- f. Teaching laboratories and student spaces
- g. Support spaces
- h. Classrooms
- i. Office spaces
- j. Sustainability
- k. Network/IT

The following table is a summary of all spaces needed in the renovated building with approximate area required.

**Table 1. Summary of building spaces** (items in **bold** not in current building)

| No. | Space   | Area (sq.ft.) |
|-----|---|---------------|
|     | <b><i>Office and support type space and non-laboratory research space</i></b> |               |
| 1   | Department head office  | 240           |
| 2   | Administrative office 1   | 120           |
| 3   | Administrative office 2   | 120           |
| 4   | Administrative office 3   | 120           |
| 5   | Administrative office 4   | 120           |
| 6   | Administrative office 5   | 120           |
| 7   | Record storage  | 120           |
| 8   | Office supplies   | 75            |
| 9   | <b>Reception area</b>   | 240           |
| 10  | Mail/support room   | 400           |
| 11  | Lunch room  | 250           |
| 12  | <b>Administrative conference room</b>   | 150           |
| 13  | Tenure track and non-TT offices (30-120 sf)                                   | 3600          |
| 14  | Post-doctoral and visiting scholars (4-240 sf)                                | 960           |
| 15  | Graduate student offices (12-240 sf)  | 2880          |
| 16  | <b>Open collaborative spaces (3 at 150 sf)</b>                                | 450           |
| 17  | <b>Closed collaborative spaces (3 at 150 sf)</b>                              | 450           |

|    |   |      |
|----|---|------|
| 18 | Undergraduate student lounge  | 800  |
| 19 | <b>Graduate student lounge</b>  | 360  |
| 20 | <b>Community Space (inside)</b>   | 3000 |
| 21 | <b>Community space (outside, on green roof)</b>   | 400  |
| 22 | Seminar/conference/workshop room 1  | 1300 |
| 23 | <b>Conference room 2</b>  | 360  |
| 24 | Conference room 3   | 240  |
| 25 | <b>Bioproducts Marketing</b>  | 750  |
| 26 | <b>Bioproducts Business</b>   | 750  |
| 27 | <b>Locker rooms</b>   | 400  |
| 28 | Hallway displays, etc.  | na   |
|    |   |      |
|    | <b><i>Classrooms</i></b>  |      |
| 29 | Computer lab  | 1300 |
| 30 | Classroom 1 (70)  | 1400 |
| 31 | Classroom 2 (45)  | 900  |
| 32 | Classroom 3 (35)  | 700  |
| 33 | Classroom 4 (25)  | 500  |
|    |   |      |
|    | <b><i>Teaching and research laboratories and comparable support spaces - low bay any floor</i></b>        |      |
| 34 | Electronics teaching  | 1300 |
| 35 | Electronics Instrumentation Lab   | 500  |
| 36 | <b>Microbiology teaching</b>  | 1300 |
| 37 | Microbiological Engineering Lab   | 1300 |
| 38 | Fermentation Research Lab   | 500  |
| 39 | Biomass conversion lab  | 1300 |
| 40 | Synthetic biology   | 1300 |
| 41 | Shared support space (autoclave/cold/sample/etc.)   | 1000 |
| 42 | Bionanomaterials/microbiology   | 1300 |
| 43 | <b>Biomaterials chemistry</b>   | 1300 |
| 44 | Food and bioparticle materials laboratory   | 1300 |
| 45 | Odor/air quality research   | 1200 |
|    |   |      |
|    | <b><i>Teaching and research laboratories and comparable support spaces - high bay and first floor</i></b> |      |
| 46 | Biomass receiving   | 600  |
| 47 | Biomass processing lab  | 600  |
| 48 | Food and bioprocess engineering pilot plant   | 2000 |
| 49 | <b>Wood and bioproducts research and extension</b>  | 1300 |
| 50 | Collaborative research and extension space (high bay)   | 1300 |
| 51 | Natural resource engineering research and extension   | 2000 |

|    |  |      |
|----|--|------|
| 52 | Natural resource engineering teaching  | 2000 |
| 53 | Machinery systems teaching and research  | 6100 |
| 54 | Mechatronics and precision agriculture   | 1000 |
| 55 | Cold storage room  | 250  |
| 56 | Fabrication and Design Laboratory <b>(1100 sf. previously in FRL building)</b> | 4100 |
| 57 | Agricultural safety and health   | 700  |
| 58 | Extension and outreach staging area  | 750  |
| 59 | Extension storage  | 700  |
| 60 | COE Learning Factory   | 1300 |
|    |  |      |
| 61 | <b>Fermentation shared user facility (priority 1)</b>                          | 2500 |

*Note: A detailed Program of Requirements will be provided to the short-listed firms.*

For your reference and use, see site plan below and on the following page.







#### D. SELECTION AND IMPLEMENTATION MILESTONES

|   |                               |
|---|-------------------------------|
| • RFP Issued:                                 | Aug 21, 2014                  |
| • <b>Submission of RFP:</b>                   | <b>Noon, Oct 2, 2014</b>      |
| • Shortlist Selections:                       | Oct 20, 2014                  |
| • <b>Conceptualization Phase Workshops:</b>   | <b>Week of Nov 10, 2014</b>   |
| • Interviews:                                 | Week of Jan 5 or Jan 12, 2015 |
| • <b>Board of Trustees Selection of Team:</b> | <b>Jan 16, 2015</b>           |
| • Commence Design:                            | Feb 2015                      |
| • <b>Project Occupancy:</b>                   | <b>Spring Semester 2018</b>   |

#### E. PRE-PROPOSAL SUBMISSION CONTACT

The Office of Physical Plant encourages you to visit the site and discuss the project with representatives of the user group in order to understand all goals and the major issues driving this project. Contact John Bechtel, Assistant Director, Design and Construction at 814.865.7079 or [jrb115@psu.edu](mailto:jrb115@psu.edu) with any IPD process or contract questions and *to schedule your site visit*. Contact me directly if you have any campus planning, design or general process questions.

#### F. PROPOSAL REQUIREMENTS

Deliver **Eighteen** (18) hard copies of your proposal (plus, provide one digital copy on a Jump drive) to:

**David Zehngut**  
**University Architect**  
**Penn State University**  
**200 Physical Plant Building**  
**University Park, PA 16802-1118**

814.863.3158  
[Dxz3@psu.edu](mailto:Dxz3@psu.edu)

**Proposal due by October 2, 2014 @ 12pm (noon) EST.** Proposals received after this date and time will be automatically rejected. **Proposals shall be provided in an 8.5"x 11" format.**  
**Limit submission to sixty (60) single-sided pages maximum (30 double-sided).**

**A cover letter shall be provided from the proposed leaders of the IPD Candidate Team submitting. The letter should provide the following:**

- a. Certification that all information in your submittal is accurate
- b. This letter should also establish the primary contact, and contact information, for the duration of the selection process for your IPD team
- c. A concise summary as to why your IPD team is best suited for this project

**Collate and bind proposals according to the following four (4) Sections:**

*(Proposals shall follow the below format, in the order stated to ensure that all pertinent information necessary for evaluation is included and easily comparable by Selection Committee. The brief cover letter, table of contents, and divider pages will not count towards the RFP page limitation. OPP encourages you to be as brief as possible without sacrificing accuracy and completeness.)*

**Section 1.0 – IPD TEAM STRUCTURE**

- A. Provide IPD team organizational chart including ALL IPD team member companies and leadership names/positions. Identify clearly which team members are designated from the Design and Construction teams to fill leadership positions on the team. Please highlight any minority business enterprises on your IPD team.
- B. Provide one-page resumes maximum of key team members identified in organizational chart. Include two (2) Owner references for each individual.
- C. Provide a matrix of proposed project team member individuals who have worked together over the past five (5) years on projects. List team members and associated projects.

**Section 2.0 – TEAM QUALIFICATIONS**

- A. Provide a summary of qualifications and expertise of the firms and key individuals committed to the IPD Team with specific emphasis on:
  1. Advanced safety culture/expertise, Prevention through Design
  2. Innovation in sustainability
  3. Leading edge integrated practices/processes and application of Lean principles
  4. Academic engineering/lab experience
  5. Virtual design and construction (BIM)
  6. Distinguishing factors of team differentiation
- B. Identify a maximum of five (5) projects which BEST exemplify qualifications and expertise listed above for IPD team. Please be clear on the participation of individuals from the proposed IPD team.

- C. Provide graphic examples of selected projects personally done by the lead design architect, including a brief description of concept and completion date of project. Please include a maximum of five (5) projects.

### **Section 3.0 – IPD and PROJECT APPROACH**

- A. Describe your IPD team approach to the following:
1. Early Involvement of participants
  2. Shared Risk and Reward
  3. Multi-Party Contract
  4. Collaborative Decision Making
  5. Liability Waiver
  6. Jointly Developed Goals
  7. Co-location
- B. Briefly describe the approach your team would take for planning, managing, and executing the integrated design process, please include reference to team organization across disciplines and companies, decision making processes, quality control, and means for pursuit of innovative design.
- C. Briefly describe any other priorities and innovative approaches to IPD and collaboration that your integrated team can offer to this project.
- D. MBE/WBE participation: Outline your approach to maximize MBE/WBE participation for consultants and contractors.
- E. Sustainability: Provide the IPD Team’s initial recommendation relative to the approach to sustainable design and outline how you will drive towards the sustainability goals on the project.

### **Section 4.0 – PROJECT SPECIFIC KEY DRIVERS and IDEAS**

- A. Describe key project drivers/critical design and constructability issues your IPD team has identified as a priority for this specific project based on your site familiarity and understanding of project at this time.
- B. Provide initial thoughts on potential design concepts and your thoughts on the project budget identified in the RFQ (dated 6/30/14).

*END of RFP*

Thank you for your anticipated participation in this RFP process. The Pennsylvania State University and the Department of Agricultural and Biological Engineering look forward to reviewing your responsive proposal.

Sincerely,

David Zehngut  
University Architect  
(814) 863-3158, E-mail dxz3@psu.edu

cc: Screening Committee Members