COAA PROJECT LEADERSHIP AWARD 2020

EXHIBIT STAGING CENTER

COAA®

THE OFFICIAL WEBSITE OF THE CONSTRUCTION OWNERS ASSOCIATION OF AMERICA

PHIPPS

SECTION 1: General Project Information

Name of Project:
Exhibit Staging Center

Location of Project:
Pittsburgh, PA

Name and Address of Owner:
Phipps Conservatory and Botanical Gardens
One Schenley, Drive
Pittsburgh PA, 15213

Name and Address of Design Professional(s):
4080 Architecture
4 Smithfield St # 6
Pittsburgh, PA 15222

Name and Address of Construction Professional(s):
Massaro Construction Group
120 Delta Drive
Pittsburgh, PA 15238

Other Consultants or Professionals:
Common Ground; Civil / Structural Engineer
10500 Old Babcock Boulevard
Gibsonia, PA 15044

Iams Consulting, LLC; MEP Engineer
333 E Carson St #323
Pittsburgh, PA 15219

Studio Phipps; Landscape Architect
One Schenley Drive
Pittsburgh, PA 15213

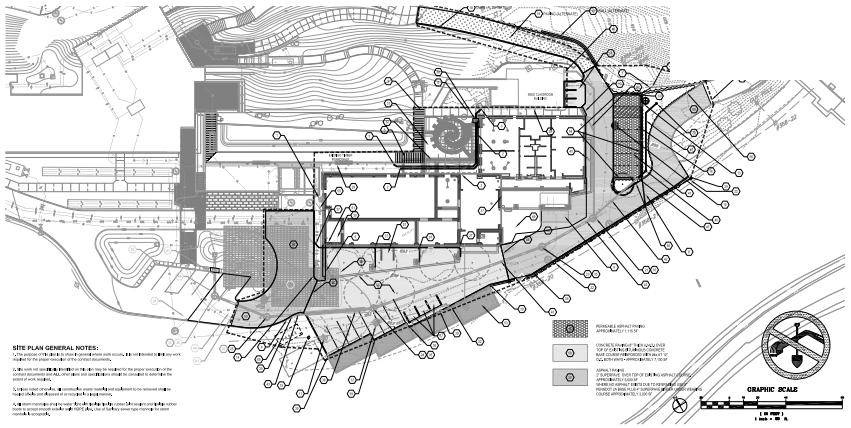
CJL Engineering; Mechanical Equipment Commissioning
1555 Coraopolis Heights Road, Suite 4200
Moon Township, PA 15108

7group, Design Charrette Facilitating
600 Grings Hill Road
Sinking Spring, PA 19608

Shepley Bulfinch; Biophilic Consultant
3443 North Central Ave
Phoenix, AZ 85012

Type of Project:
Institutional

Delivery Method:
CM at-Risk



General Project Description
Provide a brief narrative of the project scope of work, not to exceed one (1) page.

In May 2019, Phipps Conservatory and Botanical Gardens unveiled the Exhibit Staging Center (ESC). Originally built in the 1960s, the dilapidated former public works building was a flat, windowless structure. Where others might have torn it down, Phipps and its partners saw an exciting challenge—if they could transform this old cinderblock building into one of the greenest buildings in the world, it would prove that any building can become a green building, and become a showcase where the garden's half a million annual guests can learn about high performance buildings and understand that they are beautiful and comfortable places to live, learn, work and play. The ESC showcases the latest in green building technology, transforming an eyesore on a former brownfield into an environment dedicated to the physical well-being of its occupants, its visitors and the ecology of its site. This dynamic adaptation is designed to achieve three of the world's most rigorous building standards: Living Building Challenge, LEED® Platinum and WELL Platinum. The ESC is net-positive energy, with an ultra-efficient lighting system that runs on direct current (DC) electricity produced by rooftop solar panels. All rainwater that falls on the ESC is

SECTION 1: General Project Information

managed on site, and all sanitary water is cleaned through a constructed wetland system and reused. Maintenance staff and grounds crew, a group whose well-being is often overlooked, are the primary occupants of the ESC, which is designed to ensure that the health and well-being of all staff members is a top priority. Additional features encouraging occupant physical and mental well-being include a yoga studio, fitness center and meditation room. This project proves the greenest buildings can be ones that already exist. With the right priorities, even the least healthy spaces can be transformed to enhance human and environmental well-being.

Project Duration:
548 days

Project Start Date:
01/16/2018

Project Completion Date:
Planned: 12/31/18 | Actual: 7/17/19

Changes in Schedule:
There were several unseen conditions once construction began. For example, after demolishing the floors, we discovered the footers were incorrect on the existing design drawings and needed extended to support the structural updates to the building. We uncovered undocumented underground lines that needed to be relocated or updated, and submitted materials would be revised at times to meet the LBC certification.

Initial Construction Cost:
$5,244,435

Final Construction Cost:
$5,824,784

Percent of Change Orders:
10%

SECTION II: Overall Project Management

Project Management
Provide two (2) examples which demonstrate project management excellence by the Owner's Project Manager.

1. Through Phipps' execution of an extensive three-phase master campus plan and subsequent transformation into one of America's greenest public gardens, the institution has undertaken several major capital projects. In line with the mission to advance sustainability, each of these has seen Phipps take the role of early adopter, pushing the envelope of existing design, technologies and operations. Often, these innovations move faster than regulatory code and are without precedent, posing potential challenges during the permitting, construction and operational phases. Phipps is no stranger to these challenges, and the ESC project was no different. The ESC is a unique building. Among other things, it captures and treats its own water and generates its own electricity. The municipality does not deal with projects doing either one of these things very often, let alone both in one project. The project management team was able to parlay past experience and expertise into an effective strategy for navigating the sometimes turbulent regulatory waters. By working closely with all regulatory bodies, literally sitting down with them and poring over plans, case studies and successful applications of similar technologies, the team was able to secure the appropriate permits and paperwork and complete the project in collaboration with, rather than in spite, of all parties involved, as well as establish a precedent making it easier for future projects.

2. Projects, especially those as complex as the ESC, need buy-in from a wide array of stakeholder to be successful. The owner team knew this and from the outset and used an integrated design process to engage these stakeholders and to align all team members around the same understanding, intended outcomes and goals. A series of charrettes brought the owner and design team together with entities as wide ranging as community members, area universities, the office of the mayor, the city planning department, the health department, the water and sewer authority, local development committees, and the Department of Environmental Protection. This process enabled the team to carefully consider how prospective project elements might relate to one another for maximum ecological harmony and efficiency, refining concepts and developing designs to support the project's holistic success while affirming the values and needs of the region's residents and the environment.

SECTION II: Overall Project Management

Scheduling

Provide two (2) examples which demonstrate the Owner's expertise in managing the schedule; that is, identify some steps taken by the Owner which contributed to the management of the schedule.

1. While managing the schedule on any project poses challenges, the certification requirements added another layer of complexity to the ESC project. For example, each of the certifications has material requirements that necessitated a robust vetting process to ensure compliance. Every submittal needed to be reviewed which was a time intensive process. Phipps designated a three person facilities team to review all material submittals to assist the vetting process needed to meet the LEED, LBC, and WELL certification requirements. While the A/E firms did diligently review materials to meet project specifications, it was a well-coordinated team effort that helped support all of the project end goals. When materials were submitted for review and approval, the owner team reviewed and provided comments on everything. This helped all parties recognize the complexity and additional time needed to meet all of the green certification goals and help identify and work through submittal issues as they occurred. This time management issue required the owner team to stay as dedicated to the submittal review schedule just as much as the A/E/C firms in order to meet the goals of the project.

2. There were several instances when a material would be compliant with the certification requirements but additional paperwork was required. This paperwork could take time to procure and the architect could not approve the submittal, delaying the contractor from ordering. In order to mitigate this delay, the owner team created "sustainability log," detailing all of the additional documentation required. The architect could then release the submittal and the materials could be ordered, while still keeping track of any open items that required due diligence to meet the green certifications.

LIVING BUILDING CHALLENGE℠

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LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN LEED

SECTION II: Overall Project Management

Cost Management

Describe what action the owner took with the project team to manage the project costs.

As a publicly accessible model to demonstrate the importance of providing healthy spaces and how buildings of the future can be built to maximize wellness and potential, the ESC management team made every effort to manage costs while not compromising the integrity of the project. The Living Building Challenge, as well as Phipps' own philosophy, demands the use of non-toxic, healthy materials that do not off-gas formaldehyde or other potentially harmful chemicals. Initial costs of these can be higher than conventional materials, although the market is being pushed by projects like the ESC to bring these materials costs down benefitting the industry at large.

One important element to remember is the ESC will cost less to operate over time. The building generates its own electricity and captures and reuses water on site. While the ESC will be more economical than a conventional building, keeping on budget is important for not only the non-profit owner, but to demonstrate that avoiding building green because it is "too expensive" is simply not true. To that end, the project management used creativity and ingenuity to keep the ESC project costs down while maintaining a very high standard. The owner team was intimately involved in the materials selection process, including communication daily with the rest of the project team members.

It is also important to bear in mind that the "cost" of business as usual — building in a way that does not take into account the health of the builders and occupants and the ecosystem in which the building is placed — is simply too high. We can longer afford to be conventional in our approach and the ESC illustrates the real value in building in a thoughtful and responsible way. The technologies and strategies employed at the ESC are disseminated to the design and construction industries at large, acting as a market force to create jobs and economic benefits related to this new and necessary field of sustainable building.

SECTION II: Overall Project Management

Quality Management

Provide a brief narrative describing the methods of quality control/quality assurance and the Owner's participation in this area.

Beyond complex mechanical systems and the rigors of the certifications, the ESC had to resonate with people. In order for people to want green buildings, they have to be beautiful, designed with the comfort and enjoyment of the occupants and visitors in mind. In fact, one petal of the Living Building Challenge focuses on Beauty. According to the standard, "The Living Building Challenge envisions designs that elevate our spirits, connect us to nature and all other living systems and inspire us to be better than we currently are." Good design and quality craftsmanship were essential in realizing a building that is not only one of the greenest on Earth, but one that helps enriches the lives of occupants and thousands of annual visitors.

SECTION III: Overall Project Success

Identify and briefly explain the factors that contributed to the success of the project such as the selection of the A/E, Prime Contractor and Subcontractors, approach to decision-making, handling end user requests, etc. Entire section should not exceed two (2) pages.

- Several factors contributed to the success of the ESC project. At the outset of the project, the architect, owner, builder, end users and other shareholders all participated in design charrettes to develop a shared vision for the project and to ensure that all of the team members were working toward the same goals, which informed the approach to decision making throughout the project.

- Weekly OAC meetings were integral to promptly and effectively resolving any issues as they arose.

- The team successfully navigated acquiring the necessary permitting and paperwork by working closely with all regulatory bodies. This had the added benefit of setting a precedent which will eliminate obstacles and barriers for future regional projects.

- The success of the ESC has been and will continue to be measured not just in terms of an on-schedule and on-budget completion of campus addition, but in how it helps the institution fulfill its mission. A tenet of the Phipps mission is to advance sustainability and promote human and environmental well-being through action and research. The ESC helps accomplish this through its singular performance as well as the programmatic capacity it adds.

SECTION IV: Project Complexity

Provide a brief narrative (i) in bullet form and (ii) maximum of one page; describing the complexity of the project including challenges, constraints and the solutions.

- This project included converting an old building that was originally built as a maintenance garage into a multi-purpose space now utilized as a workshop, administrative offices, storage facilities and fitness and yoga areas. The ESC was designed to achieve the Living Building Challenge (LBC), LEED® Platinum and WELL Platinum. Meeting the requirements of these rigorous certifications posed unique challenges.

- The quality work and craftsmanship of the construction team had to excel to successfully bring this ambitious re-imagining of a dated and dilapidated building to fruition. The 8,750 square foot multi-use facility generates its own power, the lighting system runs on Direct Current, geothermal wells heat and cool the space, all storm and sanitary water is captured and cleaned and indoor air quality is monitored by an aircuity system. And it is built to meet the requirements of three rigorous building standards. Needless to say, the project was complex.

- For example, the mechanical systems are at the bleeding edge of technologies available. This required the constant communication of multiple teams, engineers and designers and the trades coordinating in ways that are not typical. The mechanical rooms, both relatively small, are an excellent example of quality work. Merely fitting all the necessary components in them was a feat that took teamwork and great skill, and was particularly impressive given the unique systems which include a custom DC power array and battery bank.

- The Materials petal of the LBC specifically posed some unique challenges. For example, the project could not include any products found on the "Red List," a bevy of materials and chemicals that can have negative health impacts but are commonly found in building materials. To meet these specific criteria, the team had to be diligent in working through considerable paperwork, including advocating to manufacturers whose products include Red List materials or authority having jurisdictions when codes ran counter to the Red List.

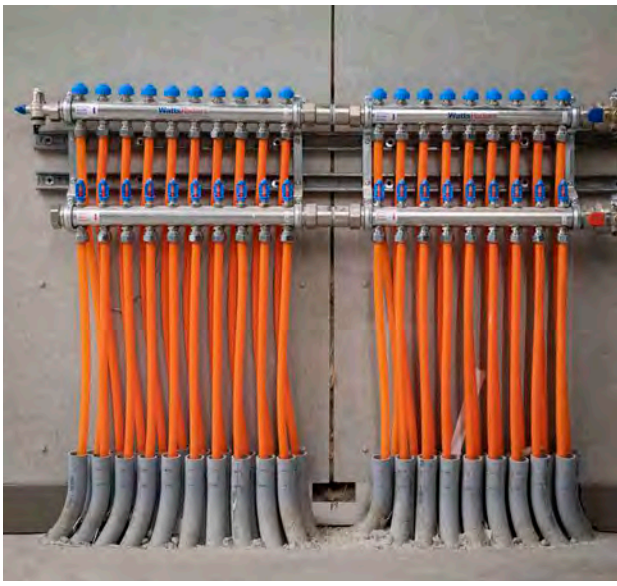
- At times, the requirements of the individual requirements conflicted. For example, because of market limitations, some materials that were identified to be Red List-compliant were only available from overseas suppliers. However, these distances were sometimes beyond the requirements of other certifications stating materials must be sourced from within specific distances from the project. Additionally, the limited market for some of these compliant materials increased lead times required, impacting the project timeline. Comprehensive materials vetting and research, as well as frequent communication with suppliers mitigated delays as much as possible.

- To address these and other issues, the team communicated regularly via weekly owner-architect-contractor meetings. These meetings kept the owners informed at all times and allowed for a clear decision-making process. A visual management system displayed the weekly work plans and utilized pull planning to implement the CPM schedule. The subcontractors always knew what the weekly goals were and reported on such at Monday meetings.

SECTION V: Sustainability Elements/Efforts

Provide a brief narrative (i) in bullet form and (ii) maximum of one page; describing sustainability elements/ efforts, if any.

- The ESC's project site, a remediated brownfield, has been restored as a safe environment for people, plants and animals.
- Rooftop photovoltaics generate 105% (65,000 kWh) of annual energy demands
- The innovative lighting system is powered via DC electricity created by rooftop PVs. The ESC's entire lighting scheme could run on a single 20-amp circuit.
- To avoid energy waste, a battery bank stores power providing two weeks of battery backup if needed.
- Seven vertical geothermal wells are integrated into the radiant heating and cooling floor system.
- Windows and adjustable solar tubes are placed amply and strategically to maximize daylighting and minimize the use of harsh overhead lights. NanaWalls also increase daylight and air flow.
- The ESC and adjacent site manages (infiltrates or captures for re-use) all precipitation that falls on it, averaging 4.5 million gallons annually. This is especially important in Pittsburgh which has a combined sewer infrastructure that results in untreated sanitary water entering the river systems. The ESC and site will send no water to the overtaxed municipal water system.
- All sanitary water is cleaned on site through a chemical-free constructed wetland system and re-used for toilet flushing.
- The lagoon is used to store rainwater and replicate the natural treatment processes of marshes and wetlands on site.
- The ESC vestibule features a green roof
- Sandstone for the project was sourced from local quarries.
- Responsibly-harvested black locust lumber, a native species with a very hard wood and no need for pressure treatment, was used on the deck and an interior wall.
- Windows have an automatic feature to open when sensors detect air quality is good outside.
- The public can view indoor and outdoor air quality in real time with the use of an air quality dashboard.
- Indicator lights on manual windows allow occupants to know whether the air quality is satisfactory to open.
- Biophilic design elements and art celebrating the bonds between humans and nature add to the healthy impacts of the building on occupants and guests.
- The ESC's vegetative green screen wall further enhances the building's biophilic connection.
- Declare label products and the avoidance of Living Building Red List materials means the building is free from many of the toxic chemicals typically found in building materials.



SECTION VI: Conflict Resolution

Provide a brief narrative (i) in bullet form and (ii) maximum of one page, describing the owner's role in minimizing and resolving conflicts.

- As with any construction project, the foundation of the team can make or break the success of the job. Because we had an array of challenges with this project, including meeting the criteria of the Living Building Challenge, it was even more imperative that we work as a team.

- The team communicated regularly at the weekly owner-architect-contractor meetings. These meetings kept all parties informed at all time and made allowed for discussion, conflict resolution and pertinent information to be conveyed efficiently and effectively.

- During preconstruction, we developed a cohesive team and it expanded throughout the life-cycle of the project. All parties involved, including the contractor, subcontractors, designers and engineers, understood the unique aspects and requirements associated with the Living Building Challenge project. However the same unique aspects of the Living Building Challenge made it difficult for cost savings.

- The team utilized a common platform for document communication via the contractor's web-based project management portal. All documentation including RFPs, submittals, construction change directives, and architectural supplemental information were distributed utilizing this program. This made the transfer of knowledge more easily communicated.

Affirmation and release

AFFIRMATION AND RELEASE:

Nomination is submitted by:	Interpretive Program Manager
Name:	Adam Haas
Company:	Phipps Conservatory and Botanical Gardens
Street Address:	One Schenley Drive
City, State/Province, Zip/Postal Code:	Pittsburgh, PA 15215
Phone Number:	412-622-6915 ext. 3803
Email Address:	ahaas@phipps.conservatory.org

In submitting this application, I affirm to the best of my knowledge, that the information contained herein is accurate and correct. I also agree to grant permission for COAA ® to use the nomination materials in their entirety (including photographs) for promotional purposes which may include, but not be limited to, the COAA® website and the *Owners Perspective* magazine.

SIGNATURE _____ DATE 8/31/2020

TITLE : Interpretive Program Manager

SECTION VII: Customer Satisfaction

Please see attached letters of recommendation from the Design Professional, Construction Professional and customer.

28 August 2020

Project Leadership Awards Committee
Construction Owners Association of America
5000 Austell-Powder Springs Road
Suite 217
Austell, Georgia 30106

Re: Letter of Recommendation for Phipps Conservatory and Botanical Gardens
2020 Project Leadership Awards
Exhibit Staging Center at Phipps Conservatory and Botanical Gardens

Awards Committee Members,

As the Principal-in-Charge of the FortyEighty Architecture, the firm responsible for leading the design team for the new Exhibit Staging Center located on the campus of Phipps Conservatory and Botanical Gardens in Pittsburgh, Pennsylvania, I am writing to this letter to express my appreciation for Phipps Conservatory's commitment and contributions to the success of the project. Phipps Conservatory, and its Executive Director, Mr. Richard Piacentini, were largely responsible for conceiving the vision for the project and in leading the project team in the transformation of what was once a dilapidated, nondescript building into a beautiful addition to the Phipps campus in Pittsburgh's Schenley Park. The successful outcome of this project is a direct result to the Phipps Conservatory's inspired vision and exceptional leadership.

The Exhibit Staging Center is a rehabilitation of an existing one-story warehouse and garage structure that was previously used by the City of Pittsburgh's Department of Public Works. As with other buildings constructed on the Conservatory's campus, the ESC project aims for lofty goals for building performance: Living Building Challenge (Version 3.0) Certification, LEED (Version 4.0) Platinum Certification, and Well Building (Version 2.0) Certification – all of which are nearing completion at this time. The ESC project completes Phipps' development of a Living Campus – it harmonizes with the rest of the buildings on the site, performs at net positive standards, and is an aesthetically pleasing addition to the overall composition of the campus.

As a means of optimizing the Exhibit Staging Center's outcome, Phipps Conservatory and the entire project team – which included designers, constructors, end-users, and other key stakeholders – actively participated in an integrated design and delivery process for the project. This process included early design charrettes with Phipps' staff and board members, design team members, construction team members, and other community leaders. These charrettes were instrumental in shaping the vision and setting the goals for the project. Phipps Conservatory took the lead for this early visioning and goal-setting process, and they continued to be actively engaged throughout the design, documentation, and construction phases of the project, to ensure that these benchmarks were constantly considered in decision-making processes and closely tracked to ensure a successful outcome.

FortyEightyArchitecture
Jeffrey T. Davis AIA, LEED AP
Four Smithfield Street, Sixth Floor Pittsburgh Pennsylvania 15222 t.412 281 8300 f.412 281 8375 www.FortyEighty.com

FortyEighty Architecture acknowledges the vital role that Phipps Conservatory and Botanical Gardens played in the successful realization of the Exhibit Staging Center project and is honored to have had the opportunity to collaborate with Phipps in making this remarkable building a reality!

Sincerely,

Jeffrey T. Davis, AIA, LEED AP
Principal
FortyEighty Architecture

August, 26 2016

COAA Project Leadership Awards Committee
5000 Austell-Powder Springs Road, Suite 217
Austell, GA 30106

Dear Members of the Committee,

It is our honor to nominate the Exhibit Staging Center (ESC) at Phipps Conservatory and Botanical Gardens in Pittsburgh, PA, for the COAA Project Leadership Award. As a project collaborator and supporter of Phipps, we have witnessed firsthand the transformative work of the Conservatory, an institution whose 120-plus-year history of commitment to the enrichment and wellness of our region's families couples with a drive to lead the industry toward new standards of sustainable systems-thinking and proactive project management.

Phipps is truly a model of total campus sustainability. From the onset of the project through final completion, the Phipps team has never lost sight of its overarching project goal: zero impact, zero exceptions. Working on any Living Building project is extremely challenging, but for Phipps this certification is only a part of the story. Beyond achieving net zero energy and net zero water, Phipps team seeks to educate and advocate regulators and community members alike on what it truly means to leave no trace.

The ESC is a unique educational experience, one that stimulates the imagination and demonstrates that even the worst buildings can be reimagined to offer the highest quality and healthiest environments. Cutting edge mechanical and electrical monitoring and control technologies creates learning opportunities for guests of all ages and skill levels.

I extend my gratitude for your consideration of the ESC project at Phipps for the COAA Project Leadership Award. Few owners go as far as Phipps in support of their ideals, and their leadership, given exposure from the prestige of awards like COAA's – will have a ripple effect in the industry that benefits all of us who believe that buildings should be safe, healthy spaces. They make an excellent candidate for this honor.

Sincerely yours,
MASSARO CORPORATION

Steven M. Massaro

Steven Massaro
President

August 25, 2020

COAA Project Leadership Awards Committee
5000 Austell-Powder Springs Road, Suite 217
Austell, GA 30106

Dear Members of the Committee,

I'm pleased to offer my letter of recommendation for the COAA Project Leadership Award to the Exhibit Staging Center at Phipps Conservatory and Botanical Gardens. As Phipps' Director of Research and Science Education, I am responsible for creating innovative local, national and international research partnerships in fields such as ecology, human health and wellness, environmental education and science communication. The addition of this cutting-edge facility to our campus has opened up a great number of possibilities, not only through its potential as a learning space, but also as a platform for research into the ways that green building designs like the ESC can promote health, wellness and developmental benefits to all who interact with them.

In its first year of operation, the facility achieved net zero energy and net zero water performance, meeting the standards of the Living Building Challenge. What makes Phipps' efforts with the ESC especially unique is the attention paid to both environmental and human health and well-being. Much important research has been conducted exploring green technologies in the built environment and building performance. But an area that has not yet been studied as thoroughly is the human element — that is, the occupants of these spaces. For innovative green buildings to become the standard rather than the exception, they need to be beautiful, comfortable and healthy, not just energy efficient. Original research conducted at Phipps and through partnerships with area thought leaders like Carnegie Mellon University and the University of Pittsburgh has already started helping us gain insights into this nascent field of study.

I thank you for your consideration of the ESC for the COAA Project Leadership Award. It is a project that takes the notion of a project owner's leadership to new and exciting places, and in consideration of all the has accomplished so far, as well as its potential in the years to come, it will make a fine candidate for this honor.

Yours sincerely,

Sarah L. States, Ph.D.
Director of Science Education and Research

Photos credits: Paul g. Wiegman; Lofty Views; Hawkeye Aerial Photography; Mark Simpson; Rob Larson Photography; Phipps staff