

## FACULTY MEMBERS



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## GRADUATE STUDENTS



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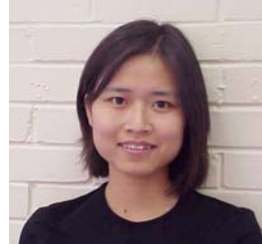
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Research Title: Continuously  
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Research Title: High Performance  
Green Building Delivery  
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Research Title: Enhancing the  
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Research Title: Decision Support  
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Research Title: Application of  
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## Recently GRADUATED STUDENTS



**Nevienne Harding**  
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Research Title: High Performance  
Green Building Factors:  
Understanding the Pre-Design  
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**Christopher Magent**  
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Research Title: High Performance  
Design Processes for High  
Performance Buildings  
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**Anthony Lapinski**  
M.S., Construction  
Research Title: Mapping the  
Toyota Delivery Process for High  
Performance Green Buildings  
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**Michael Pulaski**  
Ph.D., Construction  
Research Title: Alignment of  
Sustainability and Constructability:  
The Continuous Value  
Enhancement Process  
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# lean and green research initiative

## Developing High Performance Processes for High Performance Building Projects





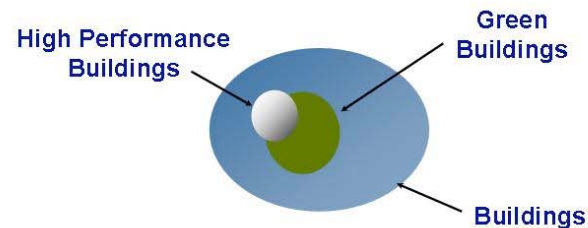
# HIGH PERFORMANCE GREEN BUILDINGS

Achieving long-term performance efficiencies at the least possible cost

## MANAGE PLAN DESIGN BUILD OPERATE

### GOAL

Define the PROCESSES and COMPETENCIES for DELIVERING High Performance Green Buildings



### OBJECTIVES

1. Define integrated design and delivery processes
2. Identify enabling delivery and procurement strategies
3. Develop project management tools and metrics
4. Define core competencies of integrated project teams
5. Educate students and professionals

### PARTNERS



leanandgreen.org

### Implement

Tools and Leadership for Owners and Project Teams

### Research

Lean Principles Applied to Achieve Green Results

### Education

Shaping the Next Generation of Green Builders

### Learning by Doing

Hands-on Green Design and Sustainable Construction

PENREN/C Handbook for Sustainability & Constructability	Greening Healthcare Facilities		
Green Project Delivery	Continuous Value Enhancement Process (CVEP)		
Owner-Centered Continuous Improvement Filter	Green Principles for Affordable Housing	Virtual Facility Prototype	Field Guide for Sustainable Construction
Process Mapping Toyota/ NAVFAC	HP Process Model & Metrics	Design Build Operate Maintain (DBOM)	
Project Delivery Study	Int. Design & Detailing - Mechanical	O & M Knowledge	
Success Factors	Contractor's Role on Green Buildings		
High Performance Green Building Factors	Sustainability & Constructability Synergies		
	Design for Deconstruction	IAQ Guidelines for Health Care	
Project Delivery Methods	Sustainable Building Methods		
	Production Management in Construction		
Quality Principles for Project Planning	Virtual Facility Prototype		
American Indian Housing Initiative Course Series			
American Indian Housing Initiative Lame Deer MT. 1999-2004		Designing the Design Process, NY. 2003	Completed AIHI Projects – See our poster!

## Current Graduate Student Research Topics

**TITLE:** Alignment of Sustainability and Constructability: The Continuous Value Enhancement Process  
**GOAL:** Enable project sustainability goals to be achieved in an efficient and cost effective manner  
**OBJECTIVES:** Work with the Pentagon Renovation and Construction Program Office to develop and implement a process that encourages project teams to identify more sustainable solutions that also improve constructability  
**RESEARCHER:** Michael Pulaski  
[mhp110@psu.edu](mailto:mhp110@psu.edu)

**TITLE:** Operations and Maintenance Knowledge for Sustainable Construction  
**GOAL:** Improve the quality of operations and maintenance input in the design and construction phases of projects  
**OBJECTIVES:** Work with the Pentagon Renovation and Construction Program Office to accomplish this goal using tools such as a DBOM contract approach  
**RESEARCHER:** Pete Dahl  
[pkd109@psu.edu](mailto:pkd109@psu.edu)

**TITLE:** Mapping the Toyota Delivery Process for High Performance Green Buildings  
**GOAL:** Capture success factors and identify opportunities for improvement by mapping Toyota's delivery process for HPGB  
**OBJECTIVES:** Develop a modeling approach to map the RE&F delivery process, apply it to a case study project, and highlight key components that enable successful HPGB delivery  
**RESEARCHER:** Anthony Lapinski  
[arl148@psu.edu](mailto:arl148@psu.edu)

**TITLE:** High Performance Green Building Factors: Understanding the Pre-Design Phase  
**GOAL:** Identifying scalable factors used in the pre-design phases of high performance green buildings  
**OBJECTIVES:** Examine successful high performance green building projects. Develop a list of guidelines for the pre-design phase of high performance green building projects  
**RESEARCHER:** Nevienne Harding  
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**TITLE:** Decision Support for Prefabrication Strategy Selection  
**GOAL:** Facilitate informed decision-making (DM) regarding the efficient use of prefabrication strategies on key systems of sustainable buildings during the design phase  
**OBJECTIVES:** Articulate synergies and tensions among prefabrication strategies, building performance and sustainability criteria; develop a methodology to facilitate DM; identify key variables that dominate DM on building systems (e.g. wall/partition, curtain wall, and MEP systems); identify attributes of building systems which can most benefit from prefabrication strategies  
**RESEARCHER:** Vivien (Yupeng) Luo  
[yzl119@psu.edu](mailto:yzl119@psu.edu)

**TITLE:** High Performance Design Processes for High Performance Buildings  
**GOAL:** Characterize the H.P. design processes and project team competencies that increase overall project success  
**OBJECTIVES:** Develop tools to measure the performance of key activities and processes on H.P. buildings and provide industry professionals a mechanism to easily utilize the research findings  
**RESEARCHER:** Chris Magent  
[cxm209@psu.edu](mailto:cxm209@psu.edu)

**TITLE:** High Performance Green Building Delivery  
**GOAL:** Develop a delivery method decision-making tool for green building industry  
**OBJECTIVES:** Gather case study projects and examine delivery methods for various green building performance metrics  
**RESEARCHER:** Sinem Korkmaz  
[szk146@psu.edu](mailto:szk146@psu.edu)

**TITLE:** Continuously Improving Green Buildings: Using Quality Principles to Identify & Quantify Valuable Delivery Process Characteristics  
**GOAL:** Identify valuable green building delivery process characteristics by mapping and analyzing the process used by Penn State's Office of the Physical Plant (OPP)  
**OBJECTIVES:** Work with OPP to map their green building delivery process, identify valuable process characteristics and eliminate wastes in process. delivery process  
**RESEARCHER:** Leidy Klotz  
[lek161@psu.edu](mailto:lek161@psu.edu)

**TITLE:** High Performance Green Building Principles for an Affordable Housing Model  
**GOAL:** Achieve an integrated design and delivery process for an affordable housing model  
**OBJECTIVES:** Evaluate and understand current practices of housing design & construction in developing countries, identify key factors of HPG buildings applicable to housing sector, design and deliver an affordable, sustainable & worldwide applicable housing model  
**RESEARCHER:** Claudia Torres  
[cxt313@psu.edu](mailto:cxt313@psu.edu)

**TITLE:** Greening Healthcare Facilities  
**GOAL:** Provide the industry of healthcare a better understanding of how the delivery of building envelopes affects the energy systems, long-term building, occupant productivity and health.  
**OBJECTIVES:** Investigate case study hospital buildings to evaluate the current delivery process of its envelope systems; identify synergies and conflicts between the building envelope, energy systems and occupant performance; Improve process for delivering building envelope systems  
**RESEARCHER:** Andreas Phelps  
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