Welcome from the Dean

During my first semester as Dean of the College of Architecture and Planning (CAP) I had the pleasure of meeting individually with our faculty. Among many other things, I discovered that we are not fully aware of the wealth of scholarship we constantly produce. Sometimes faculty attend conferences in remote locations to learn about the fascinating or ground-breaking research that a faculty colleague next door has undertaken.

At the CAP Faculty Symposium we will take time out from our usual schedule in order to learn about the richness of the scholarship and creative activities of our colleagues. Faculty have published the content of many of these presentations in peer-reviewed conferences. In some other cases faculty will present a consolidated account of several activities that motivated a number of publications in the past.

In this publication you will find short abstracts of all the presentations grouped in sessions that address the several areas of emphasis that have gained international recognition for our college. Our strengths in teaching, emerging media, sustainability, historic preservation, and community studies is evident. In some cases we see cross-over synergies between heritage conservation and emerging media, or between sustainability and community studies. We hope that as we learn more about each other, our ability to collaborate and build further on such synergies will continue to grow. We hereby invite our colleagues in other colleges and around the world to see CAP as a potential collaborator.

The symposium presentations also reveal that our research informs our teaching and our teaching is a subject of research. Furthermore, in many instances our work is fundamentally committed to or profits from interdisciplinary collaboration. Above all, the symposium shows us that our scholarship is of great relevance in meeting the challenges and opportunities of the future in our region, the nation and the world.

Guillermo Vasquez de Velasco, Ph.D.
Dean

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<tr>
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| 8:30 AM | Introduction - Dean Guillermo Vasquez de Velasco  
Opening Remarks - Provost Terry King |
| 9:00 AM | **Keynote Address - Craig Hartman** |
| 10:00 AM | Coffee Break |
| 10:30 AM | **Emerging Media**  
Antonieta Angulo  
Ubiquitous Training of Visual Spatial Skills |
| 10:30 AM | **Teaching**  
Robert Koester  
Defining the Vision for Higher Education |
| 11:00 AM | Michael Gibson  
MetaFraming |
| 11:00 AM | Stephen Kendall  
Teaching Architecture Students to Work with Distributed Design |
| 11:30 AM | Kevin Klinger  
Manufacturing Material Effects |
| 11:30 AM | Tim Gray  
Materials, Methods, and Place |
| 12:00 NOON | Lunch |
| 1:00 PM | **Emerging Media**  
Stephen Kendall  
Open Building Patterns |
| 1:00 PM | **Teaching**  
Carol Flores  
Owen Jones and a New Understanding of Design |
| 1:30 PM | Christopher Marlow  
A Prototype for e-Learning and Landform Visualization |
| 1:30 PM | Pamela Harwood  
Charter School Facilities |
| 2:00 PM | Martha Hunt  
Lessons Learned about Teaching in the Making of a Video Game |
| 2:00 PM | Ted Wolner  
Henry Ives Cobb’s Chicago |
| 2:30 PM | Josh Vermillion  
Designer as Toolmaker |
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Architecture or Built Thing |
| 3:00 PM | Coffee Break |
| 3:30 PM | **Emerging Media**  
Michele Chiuini  
Digital Reconstruction of Architectural World Heritage |
| 3:30 PM | **Teaching**  
Karen Keddy  
Communicating and Designing for Human Behavior |
| 4:00 PM | David Schoen  
Alternative Transportation Strategies: Ball State University |
| 4:00 PM | Carla Corbin  
Three Disciplines, a Common First Year: Beginnings and Influences on Student Choices |
| 4:30 PM | John Fillwalk  
Second Life |
| 4:30 PM | Brian Hollars  
Sustainability - Sensibility |
<p>| 5:00 PM | Reception |</p>
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**Papers Featured but not Presented:**
- Michel Mounayar: “Off Grid” : BioTown and energy security
- Guillermo Vasquez de Velasco: A Group of Friends: The Las Americas Network, Virtual Studios, and Distance Education in Architecture
Craig W. Hartman, FAIA

Keynote Speaker

Craig W. Hartman, FAIA, is a design partner based in SOM’s San Francisco Office. His work with SOM in the United States, Europe, and Asia, while extremely broad in its typology-ranging from entire urban districts to singular works of commercial, civic, and cultural architecture-consistently adheres to a rigorous modern vocabulary that acknowledges issues of place involving climate, physical and cultural landscape, and historic precedent.

Mr. Hartman joined SOM in 1973 and served as design partner in the firm’s Houston and Washington, D.C. offices before going to San Francisco, where he has established the West Coast architecture group as one of the region’s premier design practices. Just as SOM is a multifaceted practice encompassing architecture, planning, engineering, interiors, and graphic design, Mr. Hartman’s work demonstrates how, through interdisciplinary collaboration, projects can achieve innovation in design and building performance.

Mr. Hartman has received numerous awards and honors for his work throughout his career, including four National AIA Honor Awards, and a Federal Design Achievement Award in the 2000 Presidential Design Awards Program. In 2001 he became the youngest recipient of the Maybeck Award from the California Council of the American Institute of Architects. This award recognizes a “lifetime achievement in architectural design” by an individual.
Ubiquitous Training of Visual spatial Skills: On the development of mobile learning applications using handheld devices.

This research project seeks to develop m-learning applications that provide training in visual-spatial skills using handheld mobile devices (e.g., PDAs, and cellular phones). The paper acknowledges the role of visual-spatial competence as fundamental in science and most creative endeavors, including its critical role in architectural design. It also recognizes that there is a substantial amount of anecdotal evidence suggesting that undergraduate students in architecture have serious limitations in applying visual-spatial skills for design activities. A potential solution to this problem is envisioned through the introduction of extracurricular learning activities that are ubiquitous and learner-centered. The suggested m-learning applications will include a set of instructional modules making use of media-rich representations (graphics and animations) for conveying the nature of 3D spaces. As a first step toward reaching this development, a prototype was created and used for testing learning strategies. This experiment provided evidence regarding improvements to specific aspects of the students’ visual-spatial competency, and it also collected qualitative feedback regarding the students’ level of satisfaction about the learning experience. The paper provides recommendations for a future implementation of the beta version, including the learning strategy, content authoring, publishing, deployment, and criteria for the selection of the most accessible mobile device.

Previous Publication:
MetaFraming: Re-processing Building Information Modeling, Digital Fabrication, and Systems of Construction

“MetaFraming” hypothesizes a parametric armature, derived from Building Information Modeling (BIM), which integrates digitally fabricated structure, skin, and millwork as an alternative to traditionally discrete processes of design, construction rationalization, and building. MetaFraming stems from current computer-aided production methods: highly-customized wood trusses and panelized walls are already produced using integrating BIM and computer-aided manufacturing. These methods, while currently applied towards economizing geometrically complex tract homes, inform an approach to the design process where structure and assembly may be directly interrogated.

I explored such an approach in my proposal for the ‘99k house’, a design competition for an affordable, detached housing unit. The design emerged from morphological studies of the ‘shotgun house’, stacking rooms for efficiency while obliquely projecting space towards daylight and outdoor views. This morphology was balanced against a strict budget through the integration of digitally pre-fabricated frame and skin systems.

While BIM is demonstrated as a tool in the production of large projects, it is yet to be fully acknowledged in the re-systematizing of building production. MetaFraming describes such a re-systematizing through a parametric armature, organizing highly defined, fabrication-specific parts and positing that an architect, collaborating with a fabricator, can digitally develop and pre-assemble these components speculatively in BIM. In place of a BIM system with conventional objects, this advanced digital ‘kit’ can be subsequently and serially adapted to environmental, economic, and functional requirements. I propose to present this hypothetical approach, its relationship to the ‘99k house’ proposal, and visits to Indiana construction industries that informed this concept.
Kevin Klinger
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Manufacturing Material Effects: Rethinking designing and making

This presentation will discuss explorations in digitally-driven design informed by techniques of digital fabrication. Design processes incorporating digital fabrication are informed by the direct association between design and production and the critical deployment of a range of software and advanced machining procedures. The digital exchange of information in this inventive process has led to new forms of architectural production that bring designers deeper into the complexities of making, assembly, and material formulation. Making is increasingly being mediated - today it is the CNC machines and not the hands of the maker that mostly shape the materials and their properties. Digital fabrication techniques encourage new forms of collaboration with industry, challenge conventional methodologies, and suggest a future in which designers are much more engaged in the total process of design.

Previous presented at:
OPEN BUILDING PATTERNS: A Design Support Tool for Large Health Care Systems

In this research project, we are in the early stages of developing and demonstrating a decision support tool for large health care systems involved in the remodeling of existing buildings or constructing new hospitals in its network. The tool we propose, when fully developed, instantiated in a BIM tool, and supported by a training program, will help health care systems to design facilities that are more systematically and consistently based on current research, more adaptable and therefore more useful over time. This is accomplished by making and using a limited set of performance specifications, organized in a structure we call open building patterns. What we propose addresses several problems shared by major health care networks:

1. Most large health care systems find it difficult to develop and share knowledge, standards and design processes about human-centered care environments, among the system headquarters and its dispersed hospitals;
2. While each project is somewhat different from the next, each project too often “starts from scratch”, reinventing the wheel each time a facility planning process begins;
3. Hospitals are far too rigid in the face of differential patterns of change in health care practices, demographics, and regulations, and thus face obsolescence of technology, functional layouts and equipment, resulting in excessive costs and disruption during renovation.
A Prototype for Interactive e-Learning and Landform Visualization

Few would argue that visualization skills represent the most indispensable tool set that a landscape architect can employ to solve site/environmental design problems. Before putting pencil to paper or hand to mouse, do we not first need a mental image of our ideas or intent? Such mental skill is extremely challenging for many to learn and/or teach. This presentation continues the dialogue related to the design and effectiveness of a multimedia e-Learning prototype that helps bridge the gap between common 2-D landforms & site structures and one’s ability to understand/visualize their 3-D counterparts. Recent phases of a work-in-progress will highlight common site design & engineering processes and forms, and how Macromedia Authorware and contributing software can add great value to design, education, and research.

This prototype application can make visualization more engaging and interactive than traditional book or chalkboard methods. It promotes increasingly accessible (visible, physical and virtual) educational opportunities. It aids students in recognizing and understanding relationships between landforms and built elements in two and three dimensions. It tracks performance and records data, while allowing users to explore multiple landforms with simple mouse clicks. Ultimately, this type of application could help redefine traditional course pedagogies. Known limitations and future development considerations will also be shared.

Albert Einstein once said, “Teaching should be such that what is offered is perceived as a valuable gift and not as a hard duty.” Perhaps users can find such gifts within this teaching tool that make visualization and design clearer and easier.

Presentation Venues:
American Society of Landscape Architects (ASLA) Annual Meeting & Expo: 2003 (New Orleans), 2004 (Salt Lake City), and 2007 (San Francisco)
Council of Educators in Landscape Architecture (CELA) Annual Meeting: 2007 (Penn State University)
The (Teaching in Higher Education) Forum 2004 (Louisiana State University)
Lessons Learned about Teaching in the Making of a Video Game

This presentation reflects on the Virginia Ball Center for Creative Inquiry’s nature@play seminar and its value in terms of an interdisciplinary, immersive, learning experience. Included in this reflection is a review of characteristics found to be instrumental in the success of this seminar, and key connections to the learning environment, process, and final outcomes.

The VBC seminar nature@play has, by many accounts, met with a high degree of success. The students involved in the seminar agree that they learned a tremendous amount by working with students from other disciplines and by taking responsibility for their own learning. The video game they created, Navigating Nature, has won the American Society of Landscape Architects’ Honor Award, and more than one company has expressed interest in moving this product onto the market.

Such recognition, both internally and externally, is positive for the VBC, the Landscape Architecture Program, and CAP. But in light of the push to improve upon (and increase) quality immersive experiences for our students it is important to evaluate what contributed to the success of this seminar. This presentation opens this discussion with an evaluation of the nature@play seminar by exploring two questions: 1) How did a high degree of risk, recognition, meaning, and testing contribute to the success of this immersion experience? 2) What can be gleaned from this experience to strengthen the educational experiences for our students here, in CAP?
Designer as Toolmaker: Crafting the digital information between designers, makers + machines

“...digital technologies really put at stake the architecture of information lying behind the buildings, and this architecture with digits also has to be designed.”
-Bernard Cache, Architectural Design 73, 2003

Tools extend our ability to perform tasks—designers constantly engage tools in order to record, communicate, design, and facilitate the production of prototypes. In this presentation, emphasis is placed on self-made digital tools—mechanic systems, scripts, and parametric models—which are able to capture design intentions through an explicit recording of the procedural design steps to be executed. Prototype are seen, not as static models, but as instances within a solution set of serially-differentiated variants, carefully controlled by the designer using a self-made design system. Key to this modus operandi, is the ability to define and effectively integrate constraints and parameters—information—within a logical and methodical design recipe of relationships and associations in order to create solutions which satisfy a particular set of performance or fitness criteria.

This presentation recounts several design projects from the Institute for Digital Fabrication which vary in scale and complexity, but all benefit from custom digital ‘tool making’ as a means to collect, organize, utilize, and translate information in the negotiation, propagation, and resolution of design.

Previous presentations:
Systemic Formats Exhibition, Work on Display October-November 2007, Barcelona, Spain, Cultural Department of the Catalan Architects Association in Barcelona (COAC), curated by Anna Pla Catala.
SmartGeometry Workshop, Participant , 26-29 January 2007; New York, NY. Tutors: Axel Killian, MIT; Stylianos Dritsas, KPF London; Andrew Kudless, MaterialSystems.org; Xavier DeKestelier, Foster + Partners, SmartScrap Research + Development.

And have been funded and assisted by the following sponsors + partners:
Graham Foundation for Advanced Studies in the Fine Arts
Indiana Hardwood Lumbermen’s Association
Zahner Metals
Indiana Limestone Fabricators
A2SO4
Southern Illinois University
Meta Mechanics
Bentley Systems
SHoP Architects
Digital Reconstruction of Architectural World Heritage (DRAWH)

The proposal for establishing a program on Digital Reconstruction of Architectural World Heritage (DRAWH) in the Simlab is exemplified with two ongoing projects presented here.

The Santa Maria Antiqua project is based on a new survey with laser scanning technology, providing a three-dimensional “point cloud” of the church and surrounding archaeological area. These data are being used for the creation of a set of digital models corresponding to three areas of inquiry: the architecture of the site in the 9th century; the excavations and archaeological investigations; and the conservation interventions including the reconstruction of the church in the 20th century. The documentation relating to each area of inquiry, such as archaeological records and historical documents, will be organized in databases accessible via a web-based GIS.

The Chicago Stock Exchange pilot project is aimed at demonstrating the application of laser scanning technology for digital documentation and fabrication of terracotta panels of the Chicago Stock Exchange by Louis Sullivan. This process has application in historic preservation and documentation of historic heritage. The next phase of this project will produce an information system on the design and construction of this building.

Digital reconstruction of the terracotta panels of the Chicago Stock Exchange, Simlab, 2007

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Alternative Transportation Strategies: Ball State University

This research project identifies alternative transportation modes, for BSU staff, faculty and students, that will promote clean air and reduce parking congestion on campus. The BSU “family” is a large intelligent user-base that could, with proper incentives, be encouraged to use mass transit (bus) and/or non-pollution modes of travel (bicycle). “Encouragement mechanisms” would be the development of new “convenient” bus routes (proximity based) and the development of safe bicycle paths on Muncie arterial streets.

Certain conditions do exist that will drive development of a successful alternative commuting plan: 1) faculty, staff and student have varying needs for arrival and departure times, and 2) students would be more prone on using the bicycle trail system. Thus, this analysis is driven by the type of user and their “trip origins”. Trip origins were obtained from the University as a digital address database of faculty, staff and students. Each address record was marked as a staff, faculty or student entry. Names were not be used.

Optimization of new routes, including bicycle trails are established from pattern analysis of individual trip origins. This was accomplished by using a Geographic Information System (GIS) to first geocode addresses and secondly, to perform a GIS proximity analysis of addresses along arterial roads. Those arterials that displayed a large grouping of geocoded addresses were candidates for new MITS bus routes and bicycle routes.
Second Life

John Fillwalk, Director of the Institute for Digital Intermedia Arts and Animation will highlight two recent projects from the IDIAA Immersion Seminar in Virtual Worlds. Showcased projects will include:

Prototyping, Design and Instruction in the Virtual World
One of the virtual environments IDIAA has been developing for is Second Life - a multi-user online virtual world. Here, an interdisciplinary team of students, faculty and consultants are producing virtual art, design and curricular projects. IDIAA has developed a module to deliver a virtualized cinema curriculum in an intensive research and development project that is a partnership between the College of Fine Arts, the Center for Media Design, the Office of the Provost and Information Technology. Student designers and programmers work with a team of local and global professionals from across the arts and sciences. IDIAA was the sole recipient of the Greenhouse Grant for Virtual Worlds from Blackboard, Inc, for its innovation in instruction and design in virtual worlds.

Quest 3D Virtual Reality Authoring Environment
Students participating in IDIAA’s Immersion Seminar were named as a winner for an Award of Excellence at the recent International Digital Media and Arts Association’s National Conference in Philadelphia for their innovation in a live virtual media browser interface. The system uses Quest 3D for real-time VR rendering and interactive animation, and Max/MSP for harvesting and inputting RFID data.

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EMERGING MEDIA
Defining the Vision for Higher Education: A Whole Systems Evaluation

This paper describes the approach used at our institution to embrace the themes of this conference -- curricular transformation, sustainable campus operations, outreach to communities and active involvement by student organizations -- as part of a long-term whole systems evolution.

The work reflects a 13-year history of university-wide implementation, and as noted in the epilogue to our first Green Committee Report has been driven by "...a staged shift to greater emphasis on, and accommodation of, interdisciplinary work.” With the commissioning of our second Green Committee, Green-2, the university embarked on a whole systems examination of the opportunities for advancing education for sustainability, within the many structural layers of the institution. Flowing out of the work of that committee was the recommendation of some 186 action items, of which a top ten list for immediate follow-up was identified. These top ten action items were developed into “Tear Sheet” descriptions of actions, resource needs, and participants required to effect the prescribed change. In addition to these itemized targets of opportunity, recommendations were made for establishing a university-level Council on the Environment with representation from every stratum of the institution, the appointment of a Green Initiatives Coordinator to facilitate activities campus wide, and the naming of a Green Funding Specialist to work with constituent groups to develop program plans and shape requests for external funding.

The Council on the Environment has been active now for two years and many of the top ten action items have been implemented. A second tier of top ten recommendations has been identified and work on those is under way. Each of these initiatives is described in detail with emphasis on the importance of them to the long-term evolutionary transformation.

Finally, we conclude with observations about, and specific examples of, the adoption of singular public statements of principle by which members of the university community have marshaled interest. These include the Talloires Declaration, a University Statement on Sustainability, and the inclusion of Green Committee recommendations in the University Strategic Plan.
Teaching Architecture Students to Work with Distributed Design

The subject of distributed design is important in architectural education. Because no single designer can do everything in large projects, work must be partitioned and distributed. This means that all work is essentially partial. Recognizing that each of us does partial work has implications on how and what we teach. For this reason, my studios are constructed to explore this fact. I have developed what I call exercises to make students understand the idea of partial interventions. This paper discusses these issues by showing examples of studio exercises in which distribution of design is explored. The concept of design exercises is also discussed and carefully constrained exercises are suggested as a necessary first step to learning to design under conditions of distributed control.
Material, Method and Place: Architectural Investigations through Making

Since joining the faculty at Ball State University in the Fall of 2003 I have participated in building projects abroad, in Mexico (building with rammed earth) and in Sri Lanka (re-building in the wake of the tsunami). I have been involved in “making” workshops where I have facilitated, coordinated and participated in building projects led by invited guests. I have done a collaborative installation with a faculty colleague and two groups of students working remotely at separate Universities. In addition I have completed a variety of my own work with groups of students, most of it site specific and conceptually based, some of it collaborative, much of it highly directed.

In this presentation I would like to reflect on these projects and discuss how my own teaching methods have evolved in response to these experiences. I would also like to reflect on the experiences of the students, discussing both the benefits and the limitations of projects that involve building with students at full scale. I propose to offer a general overview of the work with a more focused discussion of a single project, the “Lightsail”; the result of a two week intensive “Freelab” I led as a visiting instructor at Dalhousie University in 2006.

“Lightsail” featured in September 2006 issue

Process photo of Architecture Magazine
Owen Jones (1809-1874) was a major theorist, reformer and architect, who sought to elevate British taste through education and through the improved design of manufactured goods. He influenced changes in the method and content of design education, instigated associations with manufacturers to produce artistic furniture, textiles, and other products and transformed thinking about architecture and the decorative arts by identifying fundamental design principles. He was also the first to introduce an understanding of the psychology of perception in his designs and in the theoretical propositions outlined in his encyclopedic study, The Grammar of Ornament (1856). The Grammar of Ornament is recognized as the leading text on ornament and was studied in art and architecture schools throughout Europe and North America well into the twentieth century, influencing generations of designers, including Le Corbusier and Frank Lloyd Wright. The book is still in print and continues to be used in college courses investigating studies of ornament and design. Despite this recognition and the fact that Jones was one of the most important designers and theorists of the nineteenth century, the absence of a book dedicated to his theories and work has resulted in lesser figures eclipsing his extraordinary contributions to architecture and the decorative arts. My book, Owen Jones: Design, Ornament, Architecture and Theory in an Age in Transition (Rizzoli International, 2006), and this talk re- dress this imbalance and reveal Jones for the visionary designer and major theorist that he was.

PRESENTATION VENUES:

Charter School Facilities - Patterns of Design: A New Architecture for a New Education

An interdisciplinary team of Business Fellow Students, facilitated by Associate Professor Pam Harwood, is researching case studies on exemplary Charter Schools from around the country as well as working through the facility planning needs of specifically identified Charter Schools in Indiana to develop strategies, guidelines, and well illustrated “design patterns” for the architectural planning of innovative and responsive school facilities. A “pattern language manual” is being developed that includes a graphic vocabulary, synthesizing learning research with best practices in school planning and design.

Understanding Charter Schools often have innovative curriculum, designed to challenge traditional education methods, it is the goal of this research project to better address the connection between the designed physical environment and the teaching and learning innovations it supports. The research will guide us in developing methods to challenge traditional school design and planning and to incorporate the facility into the innovative curriculum Charter Schools utilize.

Additional emphasis will be placed on supporting the entrepreneurial Charter School vision, providing facility need assessments and renovation of existing buildings to be utilized as Charter School facilities, and adhering to best practice standards of ecological design. Additionally, the Business Fellows worked in coordination with 4th year Architecture students in the design of a Charter School of the Dunes in Gary, Indiana and the Herron Charter School adaptive reuse of an existing urban site in Indianapolis, Indiana. Lessons learned from these design studio projects are also considered in the pattern language guidebook.

We believe that this study on how teaching and learning activities can be accommodated in responsive educational Charter School learning environments would make an effective paper for consideration in the CAP Call For Abstracts. By looking at best process practices of planning and designing learning environments, a number of emerging paradigms or “patterns” became apparent such as: the school as community center, classroom clusters, flexible, project-focused classroom spaces, a user-centered, democratic learning society, leveraging technology, and utilizing the learning environment as an “open book”. Differing educational missions, faculties, and student populations all require significantly different design approaches. Our society and educational system have changed radically in recent decades. Classroom design must mirror changes in educational styles and enable new ways of learning. This paper will review some of the most relevant trends in classroom design, drawing specifically from our research on Charter Schools.
Henry Ives Cobb’s Chicago: Cultural Institutions and the Making of an Early Modern City

Henry Ives Cobb is Chicago’s other major architect in the late nineteenth century.

Only in a city with an exceptional number of superbly talented designers would historians have underestimated the importance of Cobb’s work in Chicago. Certainly Frank Lloyd Wright, Louis Henry Sullivan, William Le Baron Jenney, Daniel Hudson Burnham, Henry Hobson Richardson, and John Wellborn Root were more creative, and Jenney’s parks, Burnham’s 1909 Plan of Chicago, Sullivan’s project for setback skyscrapers, Richardson’s reinvented Romanesque, and Wright’s low-cost housing schemes made more important contributions to the public realm.

But even without their public commitments Cobb and his buildings filled a huge institutional void that its architect-giants did not. With the University of Chicago, the Newberry Library, the Chicago Historical Society, the Fisheries Building for the Columbian Exposition, and the Chicago Federal Building, Cobb designed the facilities for more of the city’s most important institutions than any of Chicago’s other architects. More prominently than their largely residential and commercial work, Cobb’s buildings and the enterprises they housed signaled that Chicago had come of age.

Moreover, several of Cobb’s major commissions had an historical import and resonance in Chicago that the buildings of the city’s other architects did not possess. This portion of his work tied together the first (1835-1871) and second (1872-1910) generations of Chicago’s development, bringing to an early modern maturity some of the most important initiatives of the city’s founders.
Architecture or Built Thing? Translating Philosophy into Design Critique.

It is indispensabile that we, as educators, instill in our students the ability to constructively and qualitatively critique their own designs and the designs of others. This type of critique should be based upon sound logic and correct thinking. It might be argued that philosophical writings are out of the intellectual reach of beginning design students. However, the sensitive introduction of accepted philosophical patterns at an early stage will give the student a sound and correct base and set them on a path of continual questioning and understanding.

Upon considering the thoughts of Martin Heidegger in his essay “Building Dwelling Thinking,” this paper will demonstrate one possible translation of philosophy into design critique. It will also examine the results of an experimental introduction of this type of philosophy-to-architecture translation in ARCH100: an Introduction to Architecture. In the above mentioned course, the students read “Building Dwelling Thinking” and write critiques of existing pieces of architecture, searching these places for elements that respect the fourfold and understanding the impact these elements have on the visitor. The paper will also propose methods of integrating a fourfold-based design critique into the context of a first-year design studio. It will terminate with a speculation of possible criteria for choosing philosophical models other than the Heideggerian fourfold that are also valuable as tools by which we can critique design. As we widen the pool of available philosophical models, we increase the potential of translating philosophical reasoning into viable design critique.

Previously presented at the International Conference on the Beginning Design Student, March 2007 at the Savannah College of Art and Design
Communicating and Designing for Human Behavior

The two-part organization to this paper parallels two new courses in the architecture design curriculum in the second and fourth year of undergraduate design at our university. In the first course, students begin to understand environmental behavioral issues through measurement, annotated drawings, and mappings. In the second course, visual research methods are used in the planning and design of specific building types that the students are exploring in the fourth year design studio.

The first part of this paper is an introduction to the environment and behavior field, research issues and communication techniques that can be used to describe how people relate to their physical surroundings. These issues include privacy gradients, territoriality, personalization, cognition and perception, backstage behavior, and wayfinding. Reading behavioral implications of designed environments is a skill students can develop when they can understand other people’s spatial experiences in addition to their own.

The second part of the paper describes how environmental behavior research is carried out to achieve specific design interventions. In this section research methods will be explained and illustrated such as recording physical traces, observing and notating behavior in context to see how people use physical settings, using archival methods such as Sanborn maps, structured questionnaires, and focused interviewing techniques. Finally, in this presentation we will explain the research replication study assignment that relates to the students’ design studio project. Using an existing study, the students design additional methods to test basic hypotheses and research findings. The students analyze their data and present their interpretations of the findings in relation to the existing study and their particular design studio project.
Three Disciplines, A Common First Year: Beginnings and Influences on Student Choices

This paper uses surveys to investigate what students know about the three environmental design professions, and how students choose which to pursue at the culmination of a common first year. What influences the decisions they make at the end of the freshman year, when applying for entry into one of the professional programs? What are the ramifications for the design of the first year curriculum? Is it a foundation of what is common to architecture, landscape architecture and planning, or is it a ‘trying-on’ of each of three hats, in order to make an informed choice? Is the latter a bad or ineffectual idea, and if not, is it mutually exclusive with the first characterization, that of learning a shared foundation? Is it possible to have a professional design program, even at the most basic level, that does not privilege one discipline or another, in ways that are inappropriately seductive and influential? There are many good reasons for related disciplines within a College that share content and borders – both in education and in the world of professional practice – to share a common year of foundation design education, taught by faculty from all three programs. This investigation asks where, in such a curriculum, is the best place for students to learn what they need to know – either to understand how the disciplines work together, or to make a good choice for themselves. Analysis and outcomes will be addressed in the presentation, with some preliminary thoughts about ramifications about disciplinarity in a common first year.

Abstract accepted for research presentation at the 24th National Conference on the Beginning Design Student at the Georgia Institute of Technology, Atlanta, March 2008.
Sustainability - Sensibility

Sustainability, the latest thing to swoop into our profession of architecture, sometimes overlooks the most basic of our skills, the ability to solve problems. The fundamentals of materials and construction can truly be the kernel of knowledge that leads to real design solutions. Without the strong underpinning of these basic practices the true benefits of the sustainable movement are not being realized and consequently the “skinning” of volumes or the appliqué of “technology” to the box are now considered cutting-edge architecture. This approach is denying contemporary design the opportunity to truly understand how to better address our most basic need as human beings as we interact with the built environment. The results of this mind shift are conflicts between the mainstream design expectations and the sophisticated understandings of contemporary environmental design leading to stifled progress in the reality of the context in which we actually work. Our responsibilities as the educators of the future problem solvers and environmental design innovators must not allow the glamour of trends to overshadow the true realities of our profession: gravity, thermal transfer, water, time, and cost. An understanding of these dynamics and the static’s of buildability could be termed architectural sensibility.
Being Awake To Better Imagine  Shaping the Future = Building the Now

Looking for a better future in an interconnected and globalized world more than ever it is necessary to analyze divergences and similarities in the ways an architect responds to a given context. So, it is a crucial aspect of architectural education that a many-sided approach is needed to understand the discipline itself as much as to influence its future. This paper documents an immersive learning experience of the architectural heritage of three South American countries. It describes the design studio and research exercises involving different academic institutions, the formulated questions, the relevant methodology, and the lessons learned, analyzed, and exhibited upon return to America.

Introduction

A man sets out to draw the world. As the years go by, he peoples a space with images of provinces, kingdoms, mountains, bays, ships, islands, fishes, rooms, instruments, stars, horses, and individuals. A short time before he dies, he discovers that the labyrinth of lines traces the lines of his own face.

With an increasing globalization and specialization in the design and building industry, field trip explorations become pivotal in architectural education. On one side the tangible examination of an urban built environment, helps students to avoid the unfortunate danger—a ghost almost always present in the classroom setting, of looking at the architectural discipline as an isolated event or as just knowledge of form. On the other side, the construction of a learning experience with emphasis on the importance of careful thought—observation + reflection, provides an advantage to imagine and put up a wider umbrella of potential ways of understanding, interpreting and looking at architecture.

"Being Awake to Better Imagine / Shaping the Future = Building the Now," is a paper presented as part of the Cross-Cultural Encounters session, at the ACSA Northeast Regional Conference – October 2006 "Imag(in)ing Worlds to Come," Ecole D’Architecture, Laval University, Quebec, Canada.
Examining Line as a Heuristic Device in the Design Sketches of Alvar Aalto

The significance of line in Alvar Aalto’s design method must be considered critically as any interpretation of his work lies in the expressionistic, iconological, wavy line sketches so integral to his process. Researching Aalto’s drawings, glassware, experiments in wood, furniture design, and built works, I will illustrate that the line is the experimental media that allows a symbiosis between nature and culture, defining everything from the topographical character of a roof profile to the lucid form of a door pull. A heuristic process is a replicable approach for directing one’s attention in learning, discovery, and problem solving. Originally derived from the Greek “heurisko” heuristic means, “I find.” Aalto’s sketching technique is a heuristic device that enables an understanding of what it models. In this paper, the line is explored as a heuristic device to “find” insight into Aalto’s unique way of experimenting and intervening in 1) land 2) in light and 3) in life. Nine simple, efficient, searching line types, encoded by evolutionary and learned processes, are proposed to explain how Aalto makes decisions, comes to judgments, and solves creative design problems. “My theory are my buildings, I build, that’s all,” is often quoted to explain Aalto’s untheoretical bent, but perhaps Carlo Scarpa’s premise, “I want to see, therefore I draw” is more adept at describing Aalto’s approach to design. In his sketches, what first may seem to be childish scribbles, resides the essence of the design. As Aalto searches for answers through line, his sketches are an intuitive recording guided by a soft drawing instrument and the position of lead upon transparent paper. His emphasis on drawing was on the act of recording as a particular method of seeing and experiencing, a spiritual exercise to train his design sensibilities. The pencil is used in a relaxed un-self conscious way, to restate the shapes he is beginning to define, and to impress them, through a dense accumulation of marks, into his mind. For Aalto, quoting Violet-le-duc. “To draw is to see, and to see is to know.” As technological innovations occur today and we engage a digital means of design and communication, the key to enabling systems to reason and communicate about conceptual design is in this heuristic language of sketching. How the computational sketching tools become a heuristic device for design, a particular technique of directing our attention toward discovery as in Alvar Aalto’s line topology, remains a question to be explored.
Towards an Ethical Discourse

As educators in the design professions, our curricula are developed to give students the critical thinking, writing, and speaking skills necessary to enter the profession with a well-developed sense of themselves as citizens of a community. We desire for students to enter practice with a commitment to the ‘good for all’, but often have a difficult time when asked to address this elusive ‘public good’, or to even discuss the ethical responsibilities of a design professional. One of the definitions of “professional” is a sense of responsibility for one’s actions. The architect must make intelligent and responsible design decisions and consider the consequences of their actions broadly. Architecture is a multivalent, cultural phenomenon and as an architect, one is an actor in a complex process that produces environments of social, political, and economic consequence. We encourage our students to take positions, to profess their values, and to model their commitments in their studio design and course work. We may even ask them to define the value of design, but are far less likely to ask them to make those values apparent to the larger public realm. In this way, the values we have are often unspoken, misunderstood, and most importantly, unshared. How do we communicate the value of design? What is the responsibility of an architect in the 21st century? What fundamental images and ambitions have guided architects in the past and may guide us in the future? How do we, as architects, explain ourselves to ourselves and to those we work with? Ultimately, our self-image determines the way we design: our buildings reflect how we see ourselves. Have our working methods, our teachings, our values permitted the profession to serve and sustain the built environment as well as we could? Ethics, professional judgment, and a capacity for human empathy are discussed in a spirited open debate. It is the intent of this discussion to move “towards an ethical discourse.” As Thomas Fisher has remarked, “all good architecture puts forward a proposition, whether the designer is aware of it or not, about the good life, about how we should live and what we should live for. A sustained discourse about ethics will help us to create not only a better profession, but better architecture, and that is a good we all share.” Believing that the architectural profession and academia need to embrace a conversation about ethics, we offer this topical paper as a way to establish a framework.

As a critical part of this discussion on ethics, we will be presenting and discussing our new Master of Architecture curriculum, in particular aspects of its social and professional practicum content area. We encourage our graduate students to take positions in the profession, to profess their values, and to model their commitments in a series of four interrelated and integrated courses in the primary curricular area of social and professional practice. The curricular development of these courses as well as actual work written and performed by the students will be presented in this paper.
Moisture Detection in Historic Masonry using Infrared Thermography

Infrared thermography (IRT) is an effective non-destructive tool for determining the presence and extent of moisture in masonry walls. IRT has potential for evaluating the thermohygrometrical conditions of surfaces and generating precise readings of surface temperatures. IRT provides an accurate survey of the surface temperature mapping the thermal anomalies that are representative of the wall characteristics and any decay.

Moisture evaluation using IRT starts with the temperature map. It is possible to map the moisture distribution because of the cooling effect of evaporation on wet surfaces at steady state condition. The phenomenon depends on the on air temperature, the relative humidity levels, air movement, and direct sun radiation (without direct sun irradiation): this is a totally passive approach, because there is not any heating, natural or artificial.

At the Masonic Temple in Muncie, Indiana, a passive approach to IRT was used to help determine the actual distribution of moisture in an exterior masonry wall. The building has evidence of moisture infiltration on the interior plaster faces of the exterior brick walls. The primary goals of this study were to (1) find a nondestructive means of examining the interior finishes in order to map the actual distribution of moisture in the masonry, (2) determine the correspondence between visible plaster damage and the wet masonry substrates, and (3) to leave the decoratively painted plaster surface undamaged. It was determined that IRT was an investigative technique that would meet all of these goals. The investigation was successful in mapping damp areas. Active water infiltration was found and the diffusion of water is more extensive than a visual investigation indicated.

IRT has promise as a non-destructive testing method for identifying and monitoring moisture within building assemblies. It can help determine the correspondence of actual distribution of moisture and visual damage. Important in any IRT testing is the understanding that IRT is only a measure of surface temperature. The interpretation of this temperature map relies on a correct evaluation of this data in conjunction with a correct evaluation of the thermal parameters. This study supports the role of IRT as a predictive monitoring and maintenance tool. It allows the mapping of risk areas to perform early detection of factors that may be responsible for future damage when the extent of deterioration is not yet visible. This early detection may bear on both the preservation of historic building fabric and the associated costs of conservation efforts.
Celebrating Historic Preservation

The Center for Historic Preservation, as an outreach program of the Department Architecture, engages graduate assistants in a diverse array of preservation activity across the state. Through the pursuit of these activities it is our intention to give “real world” experience in preservation practice in addition to course work required in the historic preservation program—to strengthen students’ skills and knowledge while serving the very real needs of agencies and communities in Indiana and beyond. The foremost goal is teaching students; the educational context is service and the immersive opportunity.

Staff and faculty, over the four year life of the Center, have encountered a number of issues from which we can learn and improve our undertakings. Primary to achieving our goals, we understand that we must engage projects that are real. Simply stated, hypothetical projects, regardless of sophistication, cannot provide the enrichment provided by participating in the real challenges, goals, and often, dreams of people in their own communities. Even in the development of projects funded by and for state agencies, the community experience, interfacing with people in bureaucratic management as well as on the ground, cannot be duplicated in the classroom or studio.

From this we have learned more about the specific kinds of projects that work best. To the extent that projects are interdisciplinary and involve a variety of tasks—research, planning, photo documentation, building technology, interpersonal interaction, and writing—for each student, teaching and learning are maximized. The so-called people skills are best learned in the real interaction with those for whom we work, whether state “clients” or community volunteers. Students learn to see projects through from beginning to end, gain perspective, the ability to complete and polish their product, and experience end results. This is invaluable in their later ability to conceive and plan their own work. By comparison, projects that are one dimensional where a student may only be using a single skill set, have few of the benefits just mentioned, and appear repetitive, often boring, and without beginning or end. Just doing the research necessary for a project without experiencing the complexities of application or results provides fewer dividends.

We have also learned about our students’ skills—what they know when first coming into the Center. Some of these skills reflect successes (and shortcomings) of the academic program, and some speak more generally to the kinds of things that this generation of students has already accomplished. Overall, our students bring with them good computer skills, and are able to quickly learn greater proficiency in software critical to their own interests. We have noticed, for instance, that most pick up AutoCAD with a modicum of instruction, and become proficient through applying it to the requirements of Center projects. They also bring good research skills and an understanding of available resources, even our first year graduate students after having taken the class in directed research.

On the other hand we have learned that few of our students have adequate writing skills. While there are exceptions, students at the graduate level rarely write well. This is true of general narrative writing, as well as more technical writing. It is not a lack of knowledge or information that is the problem, but a simple inability to express themselves with words. We have also noticed that our students need much better building technology skills, the ability to read buildings and building pathology. They do learn some of these skills through Center projects, but do not at this time have a systematic program to teach them how to look at and interpret buildings and their problems. One skill that students seem to acquire from working at the Center, that they don’t have much opportunity to learn in the classroom, is design and issues of design compatibility, both critical for good preservation practice.

From all this, we are learning how the Center can be improved as well. It is clear that the best projects are interdisciplinary and provide opportunities for engaging in planning, research, design, history, architecture, business, economics, advocacy, and the development of relationships with those we serve. To this end we could attract a more diverse selection of students representing a greater variety of skills. In this way the assistants would have a greater opportunity to learn from one another, and in turn, attract more diverse projects. We are also learning that the Center would benefit from more funding sources in order to provide additional teaching opportunities and more experiences for students. In particular, some sort of endowment or other permanent/semi permanent source of income, however, modest, would allow the Center to engage and assist those communities with fewer resources at their disposal, so we could actively respond to the many requests for services that we currently turn away.
Ball State and the Archaeological Exploration of Sardis, Turkey

This talk presents a collage of four different activities related to the archaeological excavations at Sardis, in western Turkey.

1) Preparation of the final report on the excavation and reconstruction of the Roman-period synagogue at Sardis. This is to be one in a series of reports on the Sardis excavations (Harvard University Press, forthcoming). I have been revising text and drawings and coordinating contributions of others, to forward to the series editor this coming summer.

2) Lecture on “Jews in Ancient Anatolia” presented by me at the Turkish Embassy in Washington, D.C. on December 5, 2007. The lecture, part of the Turkish Embassy Lecture Series, surveyed the literary and archaeological evidence of the Jewish communities that flourished in Asia Minor through the Hellenistic, Roman, and Early Byzantine periods.

3) The work of CAP student architects at Sardis. Fourteen CAP students have served on the architectural staff of the Sardis Expedition since 1988, most recently Robert Horner, Jeremy Richmond, and Chelsea Wait. Nate Schlundt will join the expedition for this coming summer.

4) “Images of Western Turkey,” a series of photographs taken at Sardis, Istanbul, and other sites in western Turkey by Robert Horner, Chelsea Wait, and me, exhibited in the CAP Exhibition Gallery, October 2007.

The Sardis Expedition, a joint project of Harvard and Cornell universities, has undertaken excavations at the site since 1958.

References:


A survey of historical writings about the removal of Seneca Village from Central Park and the loss of this African-American community

Seneca Village was a living and viable community consisting mostly of free African-Americans between 1825 and 1857 in what is currently known as Central Park, New York City. These were not tramps and squatters, as some would argue. In fact, most were landowners. In 1853 the city claimed the right of Eminent Domain for the creation of a public park. Sixteen hundred people spread throughout current day Central Park on over 7,500 lots were directly affected by this decision. After their removal, there is never a record of this community ever reforming.

Landscape Architectural history textbooks have presented limited to no information about this African-American community. Landscape Architecture training has lost a vital piece of history and is therefore receiving a biased view of the formation of our professions’ foundational masterpiece.

This paper will discuss the history of this community and its end. The author will discuss the findings of common texts used for instruction in Landscape Architectural history classes, and will look at original texts, including Olmsted’s own writings about the design and construction of the park. A brief overview of Central Park, present day, will also be provided.
CHECK THE OIL? Service to the Profession

The scope of performance expectations for a faculty member typically embraces productivity in the broad areas of teaching, scholarship, and outreach. Outreach is sometimes assumed to include service, although service may be a separately enunciated expectation in some university settings. Service may be rendered to one’s department, college, or university – in which case the effort may be viewed as part of the job. Service may be rendered to individuals or organizations in the community with no connection to one’s job responsibilities – in which case the effort may be viewed as a philanthropy of time. The purpose of this presentation is to address faculty service to the professions – which can fall into either/both of the above categories, but which should be an expectation for most faculty at some point in their careers. This presentation will discuss the professional service activities of the presenter over the past 20 years.

The organizations involved include the Architectural Research Centers Consortium, the Society of Building Science Educators, the American Solar Energy Society, and the American Society of Heating, Refrigerating and Air-Conditioning Engineers. The presentation will attempt to answer the question: what’s in it for me?
Teaching, Service & Research: Academic Triad Continues to Inform “Retired” Professor’s Life

If old soldiers, “... just fade away,” then what happens to professors from the “Bay-Boomer Generation” after they retire from 38 years as a faculty member at Ball State’s College of Architecture & Planning?

It is often said that being an architect is not a profession, but rather a “way of life!” If this is, in fact, true ... then can someone who has taught architecture for 38 years, and been a sole practitioner for 32 years, simply walk away from this way of life after retiring?

This presentation will explore one of our country’s most pressing social and cultural issues ... those relating to the “Baby Boomer Generation” as they approach retirement age.

How can our communities benefit from their life experiences gained from four decades of living with a pace of technological change that staggers the imagination? How can today’s profession of architecture benefit from its members who were educated under the concepts of “modernism?” Does being shaped by the turbulent decade of the ’60s still impact the manner in which they perceive an architect’s role in society?

Using Ball State’s mission triad of “teaching, service & research,” this presentation will chronologue the last three years of the personal and professional journey of Tony Costello, FAIA, as he coped with “early retirement” and entered into another phase of life. Still greatly influenced by this academic triad, follow one man’s journey as he continues to: teach part-time; participate in community-based charrettes; remain as faculty advisor to school’s AIAS chapter; write and publish; practice as a sole practitioner; serve the AIA in various capacities on the national level; and be engaged in mission work in Haiti.
OPTII kids: CamelBack Children’s Furniture

The camelback table and chairs came into being rather serendipitously. We had a granddaughter … only to discover, it’s not so easy to find furniture for little people. As professors of architecture, our next step was obvious, and a project was born. The question was how to design children’s furniture inexpensively that is durable, portable, easily constructed, and at the same time eco-friendly. (Not necessarily in that order.)

The concept became one of embedding design lessons anywhere. From out-of-the-box furniture, where children and parents can participate in making and where packaging carries instructions – proportions and geometry of the object provide ways of discovery and learning to read patterns and “shape grammar.” Of the two pieces shown from the camelback collection, it is the table base that we find most intriguing: a leg bridge that is at once structural support and joinery. Birch plywood is the primary material, however other materials are being considered.

Kids love to construct, de-construct, re-construct and create imaginary worlds. The camelback table and chair provides a safe and stable platform for children to learn, experiment, play and just have years of fun.
A New Village in Sri Lanka: Learning Lessons There, Sharing Lessons Here

When the Indian Ocean tsunami hit Sri Lanka, it destroyed the 190-person village of Kalametiya. Eleven people were killed and every building was ruined.

In March 2005, the first two authors helped to “catalyze” the reconstruction of the town under the direction of Sri Lankan architect Madhura Prematilleke and with Ball State University colleague Nihal Perera and 21 CapAsia students from the U.S. These efforts, along with those of many local citizens and relief workers, built one of the country’s first post-tsunami permanent villages, known today as Minsiripura. Responding to such extreme local circumstances can challenge existing knowledge, if one is prepared and open. For example, when building with no electricity on-site, participating in auspicious moments, sharing tea with adults, and playing with children, the need to respond to local conditions becomes magnified, especially to an outsider.

When working with limited resources under an unyielding sun, it is immediately obvious that buildings, builders, and architects must be “smart” regarding the climate, available materials, and culture. And when heeding the plans and advice of others, one comes to understand that letting go—believing that a good way to change the world is to be open to changing yourself—can reveal something wonderful that was previously unimaginable. Such circumstances provide a test, of sorts, regarding what is known and what needs to be known, and represent a classic epistemologic reordering, what Maxine Greene refers to as ‘wide-awakeness’ in contrast to sheer attentiveness, in which a person is fully present in the contextualized moment before him or her.

This paper reflects on our shared experiences in Kalametiya and discusses how lessons learned there have influenced recent works completed by the authors and their students, including a construction in Halifax, Nova Scotia, Canada and deconstructions in Flint, Michigan, USA. Both projects question conventional 1-2-3 sensibilities (which assume that knowledge flows primarily if not exclusively from the First World to the Third World) and instead promote a 3-2-1 awareness—that there is much to be learned in the developing world.

Presented at the International Conference in Building Education and Research held in Sri Lanka, February 2008.
CBP-LDI Projects

The Community Based Projects program (CBP) and the Land Design Institute (LDI) are co-leading the African University in Tali, Cameroon project. Phase One includes its strategic plan, educational concepts, core curricula, development framework (construction and operation), and design-build of education unit 1. Phase Two implements several community eco-economic villages as immersion-learning laboratories for learning to facilitate community-empowering eco-economic development, build strong communities, sustain the health and productivity of ecological environments, evolve curriculum, and demonstrate community-empowering and sustainable eco-economic development. Phase Three implements a series of degree programs (food production, integrated technologies, green materials and technologies, etc.) and associated village clusters where students learn to become eco-economic and community development experts and apply this expertise as community leaders.

CBP, LDI, and the Center for Media Design (CMD) are also partnering with Jeremy Har ris on the Sustainable Cities Video Initiative. This initiative seeks to produce a nine-part series which will explore the approaches cities and their citizens can take to reduce greenhouse gases and global warming. Episodes will include topics such as designing cities modeled after natural ecosystems, urban land use, transportation, waste recycling, urban infrastructure, and urban energy policy.
Land Design Institute (LDI) Initiatives and Projects

In its Sustainability for the Americas Initiative, the LDI serves as U.S. Lead on two federally-funded sustainability consortia: the U.S. Brazil Sustainability Consortium (USBSC) and North American Sustainability, Housing and Community Consortium (NASHCC). The USBSC includes two US and two Brazilian universities; The NASHCC includes two US, two Canadian and two Mexican universities.

The LDI leads the LandLab Initiative to create an eco-balance design and resource-balancing Green Technology Education, Research and Demonstration Lab on BSU’s Cooper-Skinner field site. This initiative includes LDI partnering (Badger, Brown and Motloch) with the BSU Field Station and Environmental Education Council in the NSF-funded FSEEC-LandLab Master Planning Project. It also includes partnering (Gray and Motloch) in the Enhanced Sustainability through Straw-Bale Construction pilot project that educates, researches, and demonstrates how to live sustainably in the Midwest.

In its Indiana Sustainable Communities Initiative, LDI partners with sustainability leaders in the Muncie Green Initiative, with Pilot Cities in the Indiana CLEAN Project, with State agencies in the BioTown USA project, and with CERES, CBP and IceMiller LLP on the Indiana Sustainable Business Network.

In its Integral Sustainability Initiative, the LDI director served on an integral sustainability doctoral committee at Tammasat University, Bangkok, Thailand. He partners with colleagues at Tammasat’s Integrated Sciences Program and is co-authoring an integral sustainability paper in Manusysa: Journal of Humanities (March 2008).

The LDI’s Eco-economic and Industrial Symbiosis Initiative includes partnering with the UT-Austin’s IC2 Institute. It includes eco-economic development proposals for the BioTown USA project, participation in a Purdue industrial symbiosis master’s committee, and co-authoring multiple papers at the 13th International Sustainability Conference (Sweden, 2007) and 10th Technology Policy and Innovation Conference (Norway, 2007).

The LDI’s BioTown U.S.A. Initiative includes serving on the state-level BioTown Task Force, mentoring a 2007 BioTown Business Fellows Project and an Energy Efficiency Workshop (EPA’s 2007 Save-A-Light feature project), an LDI-proposed Reynolds Eco-Economic Innovation Center and a USDA integrated farming, economic development and clean water proposal with co-P.I.’s at Purdue University.

The LDI also co-leads several CBP-LDI Projects including the African University in Tali, Cameroon, the Green Line Eco-economic and Community Development Initiative, and the proposed Sustainable Cities Video Series.
Making a Difference in the Middle East: Architecture as a small step towards peace

Regardless of political bias, it is obvious that the Middle East is experiencing unprecedented violence and unrest. Tensions are high between Muslim, Jew and Christian; between Turk, Arab and Persian; between Shiite and Sunni. It seems that the prospects of hope are slim considering the overwhelming global attitude of pessimism towards the peace process in the Middle East. What difference could a small band of architects and engineers possibly make in such dire and wide-spread adversity?

This paper will present the author’s recent professional work with two teams of architects and engineers to make small steps towards hope, unity and revitalization for two distinct communities in the Middle East. Both projects were accomplished on a pro bono basis under the leadership of the American NGO, Engineering Ministries International and involve master planning and architectural design. The first project, completed in 2006, is a new summer youth camp for Palestinian refugee children in the heart of the northern Jordanian desert. At its core, the design of the camp addresses issues of cultural identity and intends to be a place of rest for the destitute children of the Middle East. The second project, completed in 2008, involves the renovation of a summer youth camp for Armenians in Beirut. The original camp was severely damaged during the 15-year Lebanese civil war (1975-1990). The renovation, new architectural design and the master plan address the concepts of hope and unity in a society that sees more than its share of despair and division.
The Black Pearl: Development of an African-American resort community, Atlantic Beach, SC, and its intentional disconnection from the Grand Strand

Atlantic Beach, South Carolina, nicknamed the “Black Pearl”, is an active community developed by and for African-Americans. This area was founded in the 1930’s by descendants of the Gullah/Geechee people, who were residents of this area for over 300 years. Atlantic Beach was intended as a vacation destination for African-American people. It had active night clubs, hotels and restaurants and was a popular destination drawing vacationers from Virginia to Florida during the height of segregation. It sits on prime beach front real estate in the midst of the “Grand Strand”, but is intentionally, physically disconnected from the white communities surrounding it. This disconnection has led to similar outcomes the historic Gullah peoples now face. While there is a certain level of protection and sustaining of history and culture there is an unintentional sense of stagnation.

This paper will discuss the history of the town, the physical form and development, and the disconnection that continues to shape its development and history.
New Morphologies for Old Cities: The Case for Eco-Urbanism in Cali, Colombia

The city of Santiago de Cali was founded in 1536 at the foothills of the northern extension of the Andes along the Cauca River valley in western Colombia. With an initial form derived from the Laws of the Indies, the current city form has become a chaotic amalgam of various urbanistic concepts. As a consequence, the city finds itself today trapped in a morphology antipathetic to the well being of its human population faced with uncontrollable vehicular traffic, contaminated rivers, despoiled natural areas and hillsides, abducted open space along with a high number of immigrants heavily loaded toward the lowest economic and skill strata. From 250,000 residents in 1951 the city grew to 1,000,000 by the mid seventies and now embraces over 2.5 million. The original pattern of a grid with a strong north-south axis and small quarters identified by a local church held until the mid 1950’s and began to disappear in the 1970’s under vehicular parking demand and a construction boom across all areas. Significant in this context was the rural migration that began to flow into the city in great number to escape guerrilla and paramilitary violence. These immigrants settled primarily in low-lying areas more distant from the central city and subject to seasonal flooding. The cumulative effect across 470 years is a dysfunctional metropolis seeking a place of significance in the global order with initiatives like a surface mass transit system that will be operative in 2008. However, serious problems remain and fresh opportunities need to be identified and realized. The surface mass transit system can become a morphological armature that promotes the requisite conditions for orderly growth and humane living if a fresh and compelling approach to city form and function is developed. One such opportunity is the redefinition of the city and its environs along ecological lines that enable development of urban design thematics and horizons that can challenge the city to engage its future with greater confidence and measured expectations. One such study was performed last Fall by a Ball State University design studio under the leadership of Professor German T. Cruz. Using the thematic used by Rutherford Platt in “The Humane Metropolis”, the study sought to address ecological mitigation and healthy urban life promotion as a key ingredient and definer of new morphological dynamics that can propel the city into its 500th anniversary. The students participating in this study have been guided for three years in different courses taught by Professor Cruz by extensive application of principles learned and practices derived from explorations into the scholarship of teaching and learning which were in turn supported by the Lumina Foundation in a three year effort to enhance the teaching capacity and capability of faculty involved in first year or early major coursework. This cohort of students has been gradually guided to higher forms of critical thinking and performance from first and second year in a professional curriculum to a new level of cognition in the mid-years of their education under an understanding and tendering of their individual and collective character and learning modes. This study represents their transition from novice to young master prior to a confirming action in the final year of their education and eventual entrance into the professional practice realm. Their ability to engage a large theme in a different culture represents a rather large and significant step in their education and maturation.

Previously Presented:
7th International Seminar on Urban Form (ISUF 2007) held at Ouro Preto, Brazil on August 28 – September 2, 2007
The 'Daylectric' Lighting Design Studio: Integrated Illumination

The strength of design education is the self-actualizing experience of the studio culture. Students embrace design with a high-level of commitment and find tremendous gratification in the individual expression they can embody in their design work. Studio culture nonetheless has its limitations. One is that students rarely get beyond schematic design. Even in the rare case when engaging the stages of design development and detailing, they do not address the detailed design and integration of daylight with electrical illumination.

In part, this is the result of a kind of Charrette mentality built into studio education. Students spend considerable time on a typical project at a level of abstraction that is itself only schematic. They also routinely rely on the closing moments of the looming presentation deadline as the time in which they force the remaining design development. In this mode of the Charrette mentality, the time is visually productive and many decisions are made; however they reflect an immediacy of choice and seldom a recursive study or reconsidered decision. The typical preoccupation with form-making causes students to spend the majority of their time on the same types of issues; they do not experience the ways in which the act of design development can dramatically transform the schematic ideas for a building.

The course presented here, involved a different approach to the studio culture experience. The theme of the 'Daylectric' Lighting Design Studio was the architectural integration of daylighting and electrical lighting performance. This topic, although highly influential in the practice and experience of architecture, has been underrepresented/under-explored within the studio culture of most schools. The studio was offered to first-year graduate and fourth-year undergraduate architecture students and was co-taught with three internationally recognized lighting experts. Although "Environmental Systems" courses typically have covered the basic technologies of lighting, there has been little or no opportunity in these courses to engage the subject area in a building design context. To discourage the students from simply traveling the "same studio paths" yet again and to allow and encourage them to engage the possibilities, modifications in the studio structure and approach were necessary.
Environmental and human health impacts of materials are a hidden cost of our built environment. Construction materials and products can be manufactured hundreds, even thousands, of miles from a project site, affecting ecosystems at the extraction and manufacturing locations, but unseen from the project location. Despite the fact that we can’t see their impacts, materials used in construction of the built environment are damaging the world’s ecosystems at an alarming rate. Materials for Sustainable Sites, my book in press with John Wiley and Sons, discusses environmental and human health impacts of site construction materials and provides innovative, detailed strategies to reduce these impacts. The book addresses both conventional site construction materials (eg. concrete, asphalt, wood, metals, etc.) and “green” materials (eg. bamboo construction, earthen construction and plastic lumber). I have based the book on the premise that some materials can be “greened” by the way that they are specified. For instance, the environmental impacts of asphalt pavement can be substantially minimized by specifying “warm-mix” asphalt, recycling of existing asphalt pavements, use of porous asphalt, or asphalt with an open-graded friction course to reduce the heat absorption and the Urban Heat Island effect.

This presentation will summarize key issues discussed in the book through the sequential green “transformation” of two iconic site structures, the asphalt parking lot and the concrete retaining wall. Issues and challenges of performance and implementation will be addressed.
The Modern American City has evolved through layers of planning structures, political policies, democratic decisions, economic strategies, social patterns, architectural movements, and many more interactive strata. It is the result of a complex set of historical three-dimensional patterns in constant motion and pressure for change. The most recent influence to make its mark on the future of the city is the concept of sustainability and “the greening” of the city.

Urban Design is a professional design activity carried out by planners, landscape architects and architects. The realm of urban design is defined by each profession differently and sets up a public territorial conflict resulting in either separate design resolutions or in a conflicting mixed solution.

Over the course of the last seven years, I have been following two projects, one in The Netherlands and the other in Germany. The first is Leesten, an urban mixed-use development near the small city of Zutphen; the other is Kronsberg, a sustainable residential development near Hannover. Both projects are based on new sustainable urban principles, contemporary social living patterns, creative energy-saving technologies, and inventive building materials. Both projects are composed to link into an existing historic urban context.

During my Fall 2007 sabbatical, I was able to explore and document these physical environmental resolutions of urban sustainability, and was introduced to the integrative urban design process and teams that created these new urban forms. It is my intent to present Leesten as a case study in integrated urban design.
Centers for Regenerative Studies: Graduate Studio Experiences in Education for Sustainable Design

This paper reviews a six-year history of offering graduate studio education focused on design-for-sustainability. Students have been exposed to methodologies of design appropriate to servicing the interest of sustainability while maintaining a clear sense of connection to experiences of prior studio education – at both undergraduate and graduate levels.

A ten-step pattern of assignments is discussed and illustration is provided of the culminating product of these assignments: the design of a Center for Regenerative Studies, as a nodal site within an international network of similar facilities. Students have been encouraged to use as a benchmark of inspiration the John T. Lyle Center at California Polytechnic State University in Pomona. Since many of the students participating in the course have been international, an exploration has been made of the design of such centers for the climates and contexts of many of their respective homelands.

Reflections are provided on the changes made from one semester to the next as this assignment set has been refined to serve better the intent of the educational mission and to accommodate the circumstances of each successive offering. Supplemental enrichment activities are noted as well.
Abstract:
Governor Mitch Daniels designated Reynolds Indiana as BioTown USA. Mr. Daniels intends to use sustainability and renewable bio-energy as an economic engine ready to revitalize small towns in Indiana. Reynolds is the first such demonstration project. The central questions are: "will Reynolds be able to generate most if not all of its required electric energy locally from bio-fuels? Can Reynolds achieve energy independence? Is such a model possible in Indiana?"

Reynolds leaders accepted this energy self-reliance challenge and embarked on a study of the town future development where biomass energy shall be the main driving force for this future.

A team of Ball State University Building Better Communities Urban designers and Planners worked closely with the community to develop the comprehensive master plan for this small Indiana town. The team conducted onsite workshops, field inventories and analysis in order to develop a comprehensive plan for the future of Reynolds Indiana.

Development Strategies:
Residents of Reynolds may enjoy substantial energy savings and independence if they embrace quality over quantity through smart managed growth.

New development and construction standards must be encouraged to employ passive solar strategies for heating, cooling, and daylighting. Reynolds energy codes may seek to surpass those of the state. New buildings must aspire to achieve "Five Star" energy rating.

Traditionally developers have argued against such demanding codes. This resistance is usually due to the perceived need for higher capital investments. As a consequence initial capital costs become the impediment for more efficient buildings. For example using a more efficient heating system usually requires a slightly higher capital investment, however, operational costs are dramatically lower. Building owners usually opt to take the short view as they evaluate return on investment. Cost is in many cases restricted to capital improvements not including operational costs. True cost is the combination of capital and operational costs averaged for the lifecycle of the property. Life cycle must be considered as a longer period, longer than the average first tenant use of the building (typically seven years). However, structures designed based on a seven years financial plan are not sustainable. Structures with lower operational costs will reduce total price and are more sustainable. Operational costs typically outweigh capital costs however they are seldom considered or estimated. Consequently "true Cost" presents a substantially different budgetary decision. The choice varies between higher or lower initial investment vs. higher or lower total cost. Regardless of point of view a well built, long-lasting structure is more affordable if viewed from the community’s perspective.

Public education programs may be developed in collaboration with state universities such as Ball State or Purdue University to affect sound investment strategies that will ultimately reduce total true costs. The big question is who should pay the difference for these additional building improvements?

In conclusion sound growth management strategies keenly integrated into energy projections and generation capabilities will serve Reynolds economic recovery and future redevelopment. Such development will require extraordinary investments in infrastructure and long-term capitalization strategies. Market forces alone will not be able to achieve success. The economic model employed is equally important to that of the physical redevelopment strategies. Reynolds will require significant public financial assistance in its noble quest for energy independence.

Credits:
Urban Designers: Harry Eggink, RA and Michel Mounayar, RA
Urban Planner: Eric Kelly, PhD, AICP
Landscape Architecture/Sustainability Consultant: John Motloch, PhD, RLA, LEED
Technical Assistance: Elaine Fisher, BBC

Bio-Fuel Energy is thought to be the answer.
A Group of Friends: The Las Americas Network, Virtual Studios, and Distance Education in Architecture

Abstract
This presentation celebrates the critical role of the human factor in the use of digital technologies. The presentation will describe how our collective vocation towards innovation in design education has inspired, fuelled and propelled the formation and development of an active network of teachers and researchers across the Americas. Ten years after its creation, the Las Americas Digital Research Network has generated a stream of innovative implementations that have been partially reported by several authors in the annual conferences of ACADIA, ECAADE, and SIGRADI since 1997. The narrative of the presentation follows a time-line that starts with the creation of the Las Americas Digital Research Network in 1996. Supported by such a collaborative framework the paper continues to describe the implementation of virtual design studios as collaborations nested at the core of the network. Finally, the presentation explains how the virtual design studios provide fundamental feasibility for the development of network-mediated distance education curricula in architecture and the opening of a new dimension in the development and deployment of collaborative networks. This is a testimony of the power of the human factor and value of friendship in our collective development.

Web site shows an unstructured Gallery of Final Professional Study Projects. Every hyperlink provides access to a Final Professional Study in Electronic Pin-up format

Design studio at Texas A&M University in which an interactive plasma screen is used for conducting electronic reviews