2010

2010_NCARB Prize Design Collaboratory

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vi

NCARB

rms was probably one of the best experiences that I
cial…Web Conferencing
to prevent
possible despite valiant e
stronger.; 3) I have learned that miscommunication is
sense of structural understanding that I can use to better inform my projects and thus make them

The participation of the di

fields of study.

The initial design charrette was a huge leap for our team, and the success of the

Engineering and Construction Management Interdisciplinary Team:
Selected Re

from all disciplines participated in the building design to learn
and collaboration of leading architect practitioners. Students
from downtown Seattle to the Puget Sound. Both rainwater and run-o

Student Project # 2 (Selected) — Performance Driven - Phoenix, Arizonas Deck Park
High School for the Performing Arts

10 degrees in order to prevent direct summer and solstice sunlight from the south and

Student Project # 1 (Selected) — Urban Filtration - Seattle Washingtons Calhoun Ferry Dock
Housing + Retail

The primary structure, although at

A collection area at the base of the residential towers.

An organically inspired three-dimensional steel truss system lifts the ground plane in slices to

spaces.

2010 NCARB Prize Winner:
California Polytechnic State University, San Luis Obispo
College of Architecture and Environmental Design
“Design Collaboratory (DC)”

Jury comments: “Students were provided the opportunity to fully engage in a studio design project that was enhanced by the support and collaboration of leading architect practitioners. Students from all disciplines participated in the building design to learn the fundamental principals of negotiation and building systems integration. Practitioners interacted with students during lectures, design critiques, and technology training. The jury noted that the project recognized that integration of architecture education and practice leads to more informed and better outcomes and showed ways architects lead teams of professionals to common goals.”
FOUR faculty, THREE iterations, TWO departments, and ONE objective: Design Collaboratory.

To emphasize the quality of the work presented in this collection seems self-evident for two reasons. First, because the work partakes in today’s iconography of an architectural production that remains suggestive of urban places—a utopia of superstructures that has become reality in many of our contemporary metropolises. Second, even at a glance the reader will discover projects whose content is about more than rudimentary concepts. The resulting work demands careful consideration to understand what lies beyond and beneath the extraordinary imagery. In the projects there is a comprehensiveness, an exhibition of process, a clarity of intent, and a legitimacy of ideas that is sufficient to convince us that these projects convey something fundamentally different.

The true road map to understanding the projects lies in the students’ reflective essays. These essays are a testimony to the rich potential of a collaborative approach to design issues and offer insight into the students’ certitudes. They are also a testimony to the experience of collaboration and the hope that this is the beginning of a long journey in which teamwork is the antidote to the solitary artisan. I hope that you will reflect on the works they have presented, for the projects, and the entire experience of the collaborative efforts.

The students and faculty have my sincere gratitude for the richness of the experience they have shared with us. My thanks also go to Kenneth Rodrigues, principal of Kenneth Rodrigues & Partners, Inc, for naming the first interdisciplinary studio at his alma mater. We are indebted to him as he paved the way for sustained collaborative excellence.

Henri T. de Hahn
Department Head, Architecture
Design Collaboratory

Since the 2007/2008 academic year, this interdisciplinary design studio called the Design Collaboratory has been co-taught by four faculty members building upon the successful 46-year multi-disciplinary experience of this academic institution cultivating innovative models of practice through an integrated architecture and architectural engineering design studio. This team of professors, with over 40 years of collective cross-disciplinary collaborative experience, and students from Architecture and Architectural Engineering Departments participate in a 20-week design studio.

The Design Collaboratory provides for an intensive two-quarter course sequence designed to familiarize undergraduate students with practiced based knowledge and application for how interdisciplinary teams can work together to design buildings. All discipline students have a seat at the building design table and therefore students learn the fundamental principles for negotiation and building systems integration. Students are provided a unique opportunity, not provided anywhere else in the curriculum, where they are all fully engaged in the studio design project that is enhanced by the support and collaboration with leading practitioners in the field.

This interdisciplinary team approach to building design has all disciplines involved from the inception of the building design project. Innovative uses of steel, integration of structure and design, and energy efficient cladding systems, are emphasized in this comprehensive design studio. The DC’s collaborative practitioner partners are internationally recognized architecture and engineering firms, and the educational division of a major software company. Interdisciplinary student teams address complex structural/cladding systems, environmental issues, and use advanced digital technology tools, while simulating innovative collaborative practice strategies based on workflows demonstrated by leading design and engineering firms.

This Collaboratory model expands the role of the practitioner in the academic design studio by having leading firms sponsor workshops, lectures and critiques across the disciplines to reformulate the methodology for integrating a practitioner’s workflow strategies into a studio project.

The five major Collaboratory activities are:
1. Practitioner Lectures/Workshops
2. Practitioner Reviews and Discussions in a Selected Practitioner’s Office
3. Advanced Technology Training By Software Company and Practitioners
4. Digital and Physical Prototyping of Project Cladding System

Design Collaboratory Project Goals —

• To challenge or transform the preconceptions about the boundaries between academia and practice;
• For firms to strengthen students’ preparedness for practice;
• To provide opportunities for practitioners to teach, mentor and recruit;
• For students to learn from and in a practice environment.

Design Collaboratory Learning Objectives —

• That students recognize that innovative structural and cladding systems, environmental issues and building siting and building constructability knowledge is not distinct from design knowledge;
• That students develop a “rules of thumb” working knowledge of core building design topics such as structural and cladding systems design, building siting and constructability, and LEED issues can be synthesized into their design studio project;
• That students learn to conceptualize buildings not as discrete objects that ONLY RELATE to their particular discipline, but rather as an assemblage of systems and elements that are connected to and interact with the larger world;
• That students are able to understand building design from the perspective of other disciplines involved for inFORMing and inspiring the development of building project;
• That students’ learn to develop leadership and partnering skills over the course of the studio that will be used as future professionals.

Professor Jim Doerfler, AIA
Associate Professor Kevin Dong, SE, CE
Assistant Professor Mark Cabrinha, PhD, RA
Professor David Fowler IV, AIA, NCARB

Thanks to Ken Rodriguez, of Kenneth Rodrigues & Partners, Inc., for supporting the development of this interdisciplinary design studio publication. The following companies have also supported the Design Collaboratory through involvement in student reviews, providing seminars/workshops (in person and via Webinars) in how they approach design projects in practice along with providing examples of the firm’s work flow strategies for integrating technology into the development of the project. Autodesk has provided training and support for REVIT building information modeling (BIM) and Ecotect environmental analysis software.

www.krparchitects.com
Kenneth Rodrigues & Partners, Inc.

Buro Happold
www.bhappold.com
David Herd, Partner

WJE
www.wje.com
Paul Kovach, Senior Associate and Ian Chin, Vice President /Principal

Autodesk
usa.autodesk.com
Nancy Clark Brown, AEC Education Solutions Specialist
Thomas Fowler IV, AIA, NCARB
Professor – Architecture

Thomas Fowler, IV received his Masters of Architecture in Theory and Design from Cornell University in 1995 and his Bachelor of Architecture from New York Institute of Technology/Old Westbury in 1984. Thomas has over 15 years of practice experience working for architectural firms in New York City and Washington DC and over 20 years of teaching experience.

Thomas’ teaching responsibilities include third and fourth year design and building technology courses, working with a range of four and fifth year independent study students and directing his award winning digital media facility founded in 1997, called the Collaborative Integrative-Interdisciplinary Digital-Design Studio (CIDS). Over 1,500 students (700 from architecture, plus 800 from other disciplines) have participated in over 80 interdisciplinary projects since the founding of CIDS in 1997. These collaborations have involved over 11 disciplines on campus, and have brought together a range of industry professionals and clients. Thomas has published widely his work with students in the studio. Thomas has also served as paper referee for numerous conferences, journals, and has published a range of papers on his design studio teaching methods and interdisciplinary project activities. He has published an essay on teaching titled, ‘A Teacher’s View’, in Becoming an Architect, Lee Waldrep editor, Wiley 2006 (second edition with updated essay released for 2009).

During his career Thomas has received numerous awards in recognition of his teaching, research activities, and his student’s design studio work. A selected sampling of these awards includes: ACSA’s 2010 Creative Achievement Award, the 2009 American Institute of Architects (AIA) Education Honor Awards for the Integrated Project Studio (IPG) taught in collaboration with full time Lecturer Barry Williams, the 2008 AIA Education Award for CIDS, the College of Architecture and Environmental Design 2007 Wesley Award for Teaching Excellence, Architecture Department’s 2005 Faculty Teaching Award, the 1997 Young Faculty Teaching Award from the ACSA/AI/AS, and was selected for the 1994 Young Architects Competition, Progressive Architecture.

Kevin Dong, SE, CE
Associate Professor - Architectural Engineer

Kevin Dong has a Masters of Engineering in Civil Engineering, University of California, Berkeley in 1988, a Masters of Science in Civil Engineering, University of California, Berkeley in 1987, and a Bachelor of Science in Architectural Engineering, California Polytechnic State University in 1986. He is licensed as a Civil Engineer and Structural Engineer in the State of California. Prior to beginning his teaching career at Cal Poly, Kevin practiced holistic design with Ove Arup & Partners (ARUP) for 13 years, starting as an Arup Fellow in London and then moving to the San Francisco office. During his tenure with ARUP he worked on numerous projects nationally and internationally that required collaboration and integration of all disciplines from design inception through construction and occupancy.

Kevin’s teaching responsibilities range from 2nd year technology classes through graduate structural systems and seismic engineering courses. Additionally, he has been teaching a collaborative design studio for the past five years. In a movement to help non-engineering majors better understand the link between structure, design, and construction; he helped reconfigure the technology sequence for architecture and construction management majors. Kevin is also responsible for integrating Building Information Modeling (BIM) into the architectural engineering core curriculum. His latest curricular achievements include leading the development of a new graduate degree program in Architectural Engineering, re-instituting the departmental advisory council, and establishing internships for continuing graduate students. He is currently the department assistant head and graduate program coordinator/director.

During his tenure at Cal Poly he has received teaching awards and grants for his collaborative work with Cal Poly and Iowa State University faculty. The list of honors include the 2009 College of Architecture and Environmental Design Wesley Award for Teaching Excellence, 2008 ASEE Best Presentation Award for “Connecting Architecture and Structures”, ARUP Foundation Grant for the “Collaborative Design Studio” with Professors Cabrinha, Doerfler, and Fowler, the BIM Experience Award from Autodesk, in collaboration with James Doerfler, for work in creating interdisciplinary classes, and Instructionally Related Activity funding for the Collaborative Design Studio: ACSA/AISC Steel Competition.
Mark Cabrinha, PhD, RA
Assistant Professor - Architecture

Mark Cabrinha received his PhD in Architecture and Informatics from Rensselaer Polytechnic Institute in 2010, his Master’s of Architecture from the University of Illinois at Chicago in 2001, and his Bachelor of Architecture from California Polytechnic State University, San Luis Obispo in 1995 with a minor in philosophy. He is a registered architect in the state of Illinois practicing in Chicago for over seven years as a project designer and project architect for OWP/P Architects. His professional experience focused on educational environments such as the award winning A.E. Stevenson High School in which he was project architect. He began teaching full-time at Cal Poly, SLO in 2002 teaching across all year levels with focus on design, practice, and digital media and fabrication. Over the last six years, Mark’s research has focused on the impact of technology on design culture through the lens of digital fabrication through his teaching at Cal Poly, RPI, the University of Oregon, and at Ball State through the Institute for Digital Fabrication. His dissertation, (In)Forming: the affordances of digital fabrication in architectural education, focuses on the image of practice projected from within design education through a disciplinary cultural shift in the form of architectural practice afforded through digital fabrication. For this dissertation he was awarded the Architectural Research Centers Consortium (ARCC) King Medal for Excellence in Architectural and Environmental Design Research.

James Doerfler, AIA
Professor - Architecture

James Doerfler received a bachelor of the arts degree in art history from the University of Hartford and a master of architecture degree from Syracuse University. Prior to joining the faculty at Cal Poly, James taught at the University of Technology, Sydney from 1998 to 2005. While at UTS, James was course director of the bachelor of the arts in architecture degree. James’ teaching responsibilities include third and fourth year design and building technology courses, as well as a number of electives exploring issues of prefabrication and digital production. At both Cal Poly and UTS, James revised the building technology core classes to reflect current international practice. He is currently developing interdisciplinary classes and studios for architecture, architectural engineering and construction management students. His work and research focuses on connecting conceptual design to digital fabrication methods using digital tools to supplement the design process. James has lectured in the United States and Australia on the topics of museums, prefabrication, digital culture and media, and sustainability. James has had over twenty years of international practice experience. He has worked with Rafael Vinoly, Richard Gluckman and Fox & Fowle in New York City and PTW in Sydney, and his own practice in New York and Sydney. His projects have included work in the United States, China, Spain, Switzerland and Australia. James is a registered architect in New York and New South Wales, Australia. He has participated in a number of interdisciplinary and artist collaborations with diverse projects including the design of the Perth City Foreshore with artist Dennis Ashbaugh and "Agrippa: Book of the Dead" with author William Gibson and Dennis Ashbaugh.

“Working with architects forced me out of my comfort zone. They pushed me into the realm of a nontraditional structural steel design and the project only benefitted. This collaborative class is one of the best educational experiences I have had while in school.” - Engineering Student

“This experience gave me the opportunity to explore fields and programs that I would not normally be exposed to. Through interactions with architects and engineers, I had a glimpse of issues and solutions that a real consultant (and contractor) would face.” - Construction Management Student

“This working with multiple disciplines for this design project was a great experience. It allowed multiple perspectives in the design as well as some compromises that had to be made as a group. It was a great team environment that gave us a realistic approach to a steel design project. Having to do the presentation at a firm with different professionals makes you realize the importance of the project.” - Architecture Student