



PHD PROGRAM OVERVIEW 2016-17

A Year in Perspective

During the 2016-17 academic year, our PhD Program celebrated twenty years since its foundation. Since this is the first time that our PhD Program published this "Year in Perspective," it is also important to remember our mentors and colleagues who contributed to creating our PhD community. Established in 1996, our PhD Program initially focused on the realm of architectural engineering research, especially on the structure and stability of high-rise and large-scale constructions. Under the leadership of Professor Mahjoub Elnimeiri, a structural engineer who served as a consultant for many architectural firms in Chicago, the PhD Program created roots in applied sciences. In 2013, there was a moment of transition in the PhD Program when the architectural historian Harry Francis Mallgrave (currently Distinguished Professor Emeritus) created a group of research in theory of architecture. After two decades, our PhD Program offers two specializations. The legacy of Professor Elnimeiri and other faculty turned into the academic track of Technologies of the Built Environment (TBE), while Professor Mallgrave's became the History, Theory & Criticism of Architecture (HTC) specialization.

Curator

Marcos Petroli, PhD Candidate and Administrative Assistant Illinois Institute of Technology

After the growth of our specialization in the history and theory of architecture, fostered by the architectural historian Michelangelo Sabatino (Professor and Director of the PhD Program in Architecture), the PhD community decided to organize our first annual peer-reviewed PhD Symposium. During the 2016–17 academic year, many of our colleagues were from the Middle East, a fact that created an opportunity to explore the impact of modernization in the architecture, culture, and identity of the Persian Gulf region. Titled "Petroleum Modernism: Architecture and Identity in the Gulf," the symposium was organized by IIT with Professor Carola Hein from TU Delft as keynote. According to Professor Sabatino, the driving force of the symposium, the main goal of this peer-reviewed symposium was to empower students and provide experience for those pursuing academic positions. Nonetheless, who would have guessed that the ideas developed in that symposium would turn into the first issue of our *Prometheus* journal?

Sometimes ideas can lead to different paths and outcomes, which is very similar to any doctoral research. Beyond the PhD Symposium, our PhD community worked on other projects, which more or less emerged in the same manner of observation, planning, and action. The case of "Picturing Riverside," for example, was a new permanent exhibition curated by Michelangelo Sabatino with PhD students in collaboration with the Riverside Historical Commission. The PhD Program also organized architectural study trips to the Figge Art Museum, designed by David Chipperfield in Davenport, lowa, and the John Deere Headquarters, designed by Eero Saarinen in Moline, Illinois.

Certainly none of these opportunities would have been possible without the support of faculty and others who contributed to the development of the PhD Program. We also extend our special thanks to the guest speakers who visited us in our PhD Architecture Research Forum, which attracted more than twenty speakers during this 2016–17 academic year, as well as to the people who served on our PhD committees. Finally, we hope that our PhD Symposium and our *Prometheus* journal will keep growing.

We, PhD students, might not be at IIT to participate in the PhD activities for many years to come, but it was a great pleasure to be here during the first steps of these projects.

ACADEMIC PROGRAMMING

Architecture Research Forum

Our PhD program's weekly PhD Research Forum lecture series is meant to provide PhD students and faculty with opportunities to learn from and interact with researchers from a host of different backgrounds, and local, national, and international institutions. Below, we provide a list of guest speakers who visited us during the Fall 2016 and Spring 2017 semesters. All lectures are held at 3410 S. State, a Ludwig Mies van der Rohe-designed building completed in 1952, formerly known as the Gas Technology Building.

FALL 2016

1 - September 01 "The Politics of Stars"

Penelope Dean, Associate Professor School of Architecture, University of Illinois at Chicago

2 - September 08 "Night White Skies"

Sean Lally, Assistant Professor School of Architecture, University of Illinois at Chicago

3 - September 15 "Outside Research"

Jonathan D. Solomon, AIA, Director Architecture, Interior Architecture, and Designed Objects, School of the Art Institute of Chicago

4 — September 22 "The Life and Work of Architect (and IIT Alumnus) John Vinci"

Robert Sharoff, Architectural Writer; William Zbaren, Architecture Photographer

5 — September 29 "Architecture on Display: Research For and Through Exhibitions"

Jochen Eisenbrand, Chief Curator Vitra Museum

6 — October 06 "The Era of Truth and Progress? Mid-Century Architecture and Design in Italy"

Kay Bea Jones, Professor Knowlton School of Architecture, The Ohio State University

7 - October 20 "The Postwar Suburban Church"

Gretchen Townsend Buggeln, Phyllis and Richard Duesenberg Chair in Christianity and the Arts Christ College, Valparaiso University

8 - October 27 "A House and Its Atmosphere"

Ben Jacks, Associate Professor Department of Architecture and Interior Design, Miami University

9 — November 03 "Building Dynamics: Exploring Architecture of Change"

Branko Kolarevic, Professor, Co-Director of Computational Media Design (CMD) Program, Faculty of Environmental Design University of Calgary

10 - November 10 "Bowling"

Martin Felsen, Assistant Professor
College of Architecture, Illinois Institute of Technology

11 — November 17 "Re-Materialising the 'Immaterial': The Architecture of the Global Finance Industry"

Amy Thomas, Collegiate Assistant Professor, Harper Schmidt Fellow Department of Art History, The University of Chicago

SPRING 2017

12 — January 19 "Scientific and Engineering Methodologies within Architectural Research"

Mahjoub Elnimeiri, Professor College of Architecture, Illinois Institute of Technology

13 — January 27 "On Writing: Canada—Modern Architectures in History"

Rhodri Windsor Liscombe, Professor University of British Columbia Michelangelo Sabatino, Professor College of Architecture, Illinois Institute of Technology

14 — February 02 "Design Strategy in Complex Spaces of Innovation"

Carlos Teixeira, Associate Professor Institute of Design, Illinois Institute of Technology

15 — February 09 "Writing (about) Lina Bo Bardi"

Zeuler Lima, Associate Professor Sam Fox School of Design and Visual Arts, Washington University in St. Louis

16 - February 16 "Intimate Infrastructures"

Laura Forlano, Assistant Professor Institute of Design, Illinois Institute of Technology

17 — February 23 "Architectural Migration in the Early Modern Spanish World"

Jesús Escobar, Associate Professor, Chair Department of Art History, Northwestern University

18 - March 02 "Open-Air Rooms"

Cherubino Gambardella, Professor Università degli Studi della Campania Luigi Vanvitelli

19 — March 09 "Curatorial Communication: Architecture and Design for the General Public"

John Zukowsky, Independent Scholar

20 - March 23 "The Politics of Architectural Labor"

Keefer Dunn, Adjunct Professor

College of Architecture, Illinois Institute of Technology

21 — April 06 "Singapore and the New Museum Landscape"

Mechtild Widrich, Assistant Professor Department of Art History, Theory and Criticism, The School of the Art Institute of Chicago

22 — April 13 "Digital Humanities and German Architecture: Mapping the Construction Industry, 1914-24"

Paul Jaskot, Professor of History of Art and Architecture College of Liberal Arts and Social Sciences, DePaul University

23 — April 20 "The Power of Place: Equity, Ownership, Heritage, and Identity in an Urbanizing World"

Bonnie McDonald, President, CEO Landmarks Illinois

24 — April 27 "Taking Positions: An Incomplete History of Architecture and Design Exhibitions"

Zoë Ryan, John H. Bryan Chair and Curator of Architecture and Design Department of Architecture and Design, The Art Institute of Chicago

ANNUAL SYMPOSIUM HIGHLIGHTS

Overview

The inaugural PhD Student Symposium, *Petroleum Modernism: Architecture and Identity in the Gulf*, was organized by PhD Candidates Saad Alghamdi and Mohammed H. Alkhabbaz under the mentorship of Professor Michelangelo Sabatino. The symposium aimed to investigate the ways in which the discovery and export of petroleum from the Persian/Arabian Gulf during the first half of the twentieth century led to cultural, economic, and social changes with significant architectural and urban consequences in the region and beyond. While recent research is focused primarily on exploring contemporary developments, our symposium sought to present and discuss new historical research regarding key decades between the 1960s and 1980s that witnessed the pioneering efforts to transform the built environment of the Gulf.

Photos courtesy of Marcos Petroli.

Inaugural PhD Program Symposium

Petroleum Modernism: Architecture and Identity in the Gulf

October 13, 2016 3410 S. State, IIT Campus, Chicago, IL



Keynote presentation by Professor Carola Hein, titled "The Global Petroleumscape."





Overview of Doctoral Research

PhD students at IIT spend four to six years completing their studies. During their studies, they participate in many social activities from holiday events to the annual Mies van der Rohe birthday party. The integration of a PhD community contributes to a more pleasant learning environment, where students can share ideas and develop proactive behaviors. Because the majority of the students come from different countries, the PhD program promotes cultural diversity and research, both within and beyond American boundaries. The students enrolled in the PhD program explore the historic and contemporary intersections among Architecture, Culture and Technology through two areas of specialized research: History, Theory, and Criticism (HTC), and Technologies of the Built Environment (TBE). Research topics are based on the expertise of our faculty as well as on the interests of our students.

1 — Narjes Abbasabadi

An Integrated Data-Driven Framework for Urban Energy Use Modeling (UEUM) (2014–19)

2 — Saad Alghamdi

Toward 2030: Greening The Urban Superblock of Post-Oil Saudi Cities (2013–17)

3 - Mohammed Ali Khesroh

Engaging Autonomous Species: A Study in the Search of a New Autonomous Construction Method to Serve as a New Design Methodology in Extreme Environments (2016–)

4 - Mohammed H. Alkhabbaz

Leaping Into Modernity: Architecture and Identity in Saudi Arabia, 1962–1986 (2011–18)

5 - Amjad Alkoud

Investigating the Impact of Ultra-Tall Building Ordinances on the Future of Major Cities; Chicago and Dubai (2015–)

6 — Omar Almahdy

Making a Hot-Arid Desert Arab City More Livable: Investigating the Role of Street Design in Enhancing Walkability in Riyadh, Saud Arabia (2015–)

7 – Mehdi Ashaveri

An Agent-Based Framework for Integrated Modeling of Multi-Scale Urban Energy-Air Quality Systems (2015-)

8 — Ezgi Bay

Enhancing Natural Ventilation Through Massing: New Possibilities for Turkish Mass Housing in Hot and Dry Climates (2015–)

9 — Jamil Binabid

Green Facades in Arid Climate: Effects on Building Energy Consumption in Jeddah, Saudi Arabia (2012–17)

10 — Dan Costa Baciu

From Everything Called Chicago School to the Theory of Varieties (2015–18)

11 — Alia Fadel

Transitional Cultured-Nature: A Comprehensive Framework of Biophilic Analysis Investigating On-Campus Restorative Intervals for Student Stress Mitigation (2013–18)

12 - Syan Frey

Darwin's Architects: How the Theory of Evolution Shaped the Chicago School of Architecture (2013-)

13 — Ahmed Ali Hassan

The Bioenclos© Façade Panel: From Selection to Design, Assessment and Beyond (2013–16)

14 — Hyesun Jeong

Pedestrian Urbanism: The Cultural Impact of Walkable Commutes and Transit Use in Chicago (United States), Paris (France), and Seoul (Korea) (2013–16)

15 — Maryam Kalkatechi

Design and Analysis of 3D Printed Construction Unit: An Algorithm to Enhance the Structure, Environmental Performance, and Assembly of Masonry Units (2010–16)

16 - Mina Kalkatechi

A Forgotten Foundation of The Bauhaus: Psychophysiological Aesthetics and the Inception of Modern Design Theory (2010–16)

17 — Anat Mor-Avi

Architecture for the Art of Collaborative Creativity: Engaging Space Attributes as a Catalyst in Forming a Culture of 'WE' for Students and Teachers in Learning Environments (2016–)

18 - Andres Pinzon Latorre

The Influence of Courtyards: Thermal Comfort Study in Bogotá, Colombia (2012–17)

19 — Gilberto Osornio Nieto

Evaluation of Radiant Cooling Systems Based on the Glazing Facade Ratio in Office Buildings for Hot and Warm Climates: Mexico Study Case (2011–18)

20 - Nadia Shah

From Standardization to Appropriation—A Morphological Study of a Mid-Century Mass Housing Project's Mutation in the Global South (2016–)

21 - Cynthia Vranas

The Arts and Their Interrelation: Architecture, Music, and Dance in 17th-19th Century France (2012–17)

22 - Dan Whittaker

House Museums in Chicago: A Re-Examination of Motives, Origins, and Transformations of the Institution (2015–18)

23 — Yen-Hang Yang

The Experiential Education: The Study of the Students' Learning Outcomes Through 2015 IIT Design/ Built Project (2013-)

24 — Maged Zagow

Hybrid to Social Condenser: Competing Approaches to Mixed-Use Development (2013–16)

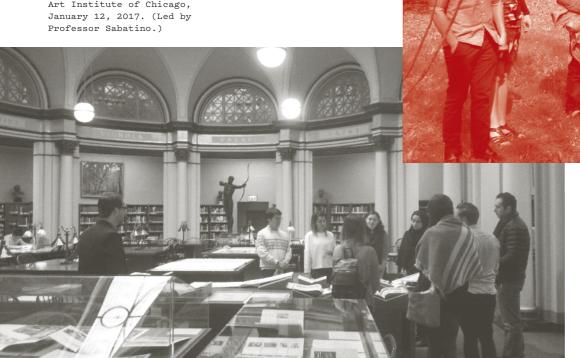


Building Community

Throughout the academic year, PhD students and faculty take a number of field trips to a host of different places, ranging from professional offices to galleries and libraries. These opportunities allow our students to discover the diverse resources Chicago has to offer, network, and get to know each other.

Photos courtesy of Michelangelo Sabatino.

Visit to the Rverson and Burnham Libraries at the Art Institute of Chicago, January 12, 2017. (Led by





Visit to Prairie Crossing, May 13, 2017. (Led by Prof. Stephen Sennott)

Visit to Omni Ecosystems, August 26, 2016. (Led by Professor Sabatino.)

Visit to Tadao Andodesigned Wrightwood 659 under construction,
September 23, 2016. (Led by Daniel Whittaker.)



Graduation (2016-17)

Photos courtesy of Marcos Petroli.



Group photo on the South Porch of S. R. Crown Hall.



Group photo at Hermann Hall.

College of Architecture Excellence Awards

Every year graduating students receive three awards: PhD Program Best Dissertation Award, ARCC King Medal, and Spirit Award.



Alghamdi, Saad. 2016-17 PhD Program Best Dissertation Award— IIT Faculty Selection Committee.



Hassan, Ahmed Ali. 2016-17 ARCC / King Medal for Excellence in Architectural + Environment Design Research-Named in honor of the late Jonathan King, co-founder and first president of the Architectural Research Centers Consortium (ARCC), this award will be given to one student per ARCC member school. Selection of school recipients is at the discretion of the individual institutions, but will be based upon criteria that acknowledge innovation, integrity, and scholarship in architectural and/or environmental design research. The award may be made at either the graduate or undergraduate level.



Mor-Avi, Anat. 2016–17 Spirit Award—Selected by the PhD students in recognition of outstanding contributions to the PhD Program "spirit" of community.

PhD Program and the Community

Picturing Riverside is a permanent exhibition about the many facets of a living landmark community. Shortly after the National Historic Preservation Act of 1966 was passed to stop reckless demolitions across the nation committed in the name of progress, the National Park Service designated Riverside as a Landscape Architecture District (1970). Designed specifically for the Riverside Train Station, Picturing Riverside opened in 2017 in the building that helped establish the town's link to Chicago and the rest of North America.

Curated by Riverside resident and architectural historian Michelangelo Sabatino with the students of the PhD in Architecture Program of the College of Architecture of the Illinois Institute of Technology; in collaboration with the Riverside Historical Museum, and Constance Guardi, Chair of the Riverside Historical Commission. PhD Students: Karl Johann Hakken, Mohammed Ali Khesroh, Anat Mor-Avi, Nadia Shah, Yen-Hang Yang and Aishwarya Karunanidhi (M.Arch). Special thanks to Nadia Shah and Mohammed Ali Khesroh for their oversight.

View of Picturing Riverside. Photo courtesy of William Zbaren.





View of Picturing Riverside. Photo courtesy of William Zbaren.

View of PhD students at the opening on January 23, 2017. Photo courtesy of Michelangelo Sabatino.



Picturing Riverside
exhibition panels
designed by Mohammed Ali
Khesroh. Photo courtesy of
Michelangelo Sabatino.

ACCOMPLISHMENTS

This is a summary of PhD student and PhD alumni accomplishments throughout the 2016–17 academic year:

Publications

Abbasabadi, Narjes, and Mehdi Ashayeri. "Towards an Adaptive Urbanism Beyond Hard Control: The Theories of Johnson and Lefebvre." In Proceedings of the 10th EAAE/ ARCC International Conference, 257–62. London, UK: CRC Press/ Taylor & Francis Group, 2017. https://www.taylorfrancis.com/ books/9781315116068.

Alkoud, Amjad. Selected Projects. *Middle East Architect Magazine*, October 2016.

Alkoud, Amjad. "Peace, Serendipity." National Geographic Website, Daily Dozen, 2016. https://yourshot.nationalgeographic.com/ daily-dozen/

Baciu, Dan Costa. "The Chicago School: Quantitative and Qualitative Data for a Complex Systems Analysis." Paper presented at the Digital Humanities Summer Institute Colloquium, Victoria, Canada, 2017.

Fadel, Alia. "Transitional Cultured-Nature: Restorative Environments in Urban Settings." Spaces and Flows: An International Journal of Urban and Extra-Urban Studies 7, no.2 (2016): 33–44.

Fadel, Alia. Photography. In *Gorillas Up Close*, edited by Christena Nippert-Eng, 170. New York: Henry Holt and Company, 2016.

Presentations

Alkhabbaz, Mohammed H., and Saad Alghamdi. "Saudi Arabia 'Leaps' into Modernism (1944–1961)." Paper presented at The Global Petroleumscape: The Exhibition, The Spatial Impact of Oil Flow, Delft, Netherlands, TU Delft, 2017.

Alkhabbaz, Mohammed H.

"A Global History of Islamic Architecture" at the Global Architectural History Teaching Collaborative, Seattle, Washington, 2017.

Alkoud, Amjad. "Petroleumscapes." Paper presented at The Global Petroleumscape: The Exhibition, The Spatial Impact of Oil Flow, Delft, Netherlands, TU Delft, 2016.

Ashayeri, Mehdi. "Glass Block as a 'Sustainable' Building Material for Building Retail Stores: 'Benson & Rixon' Store in Chicago, 1937." 5th CHSA Biennial Meeting, University of Texas at Austin, May 26–28, 2016.

Bay, Ezgi. "Bronzeville Residence Optimized for Net Zero Energy." National Renewable Energy Laboratory, Golden, Colorado, 2017.

Hassan, Ahmed Ali. "The Agro-Based Polymeric Panel: From Vegetable Oil, Starch Derivatives and Fibers to Facade and Beyond." Paper presented at Illinois Institute of Technology, Nayar Prize, Chicago, Illinois, 2016.

Awards, Fellowships, Grants, and Scholarships

Abbasabadi, Narjes. Travel Grant. National Science Foundation (NSF), Wall of Wind Experimental Facility User Workshop, Miami, Florida, 2017.

Alghamdi, Saad. College of Architecture-SOM Research and Design Intern

Almahdy, Omar. "Student Delegate." Chicago Forum on Global Cities, Chicago, Illinois, June 7–9, 2017.

Alghamdi, Saad. Summer Fellowship. Skidmore, Owings & Merrill LLP, Chicago, Illinois, 2017.

Ashayeri, Mehdi. Test team member of the "MOISTHERM" software as an integrated heat and moisture transfer calculation tool for building envelopes, National Lab (LBNL), Berkeley, California, 2017.

Bay, Ezgi. 2nd Place, 2018 US Department of Energy (DOE) Race to Zero Student Design Competition. National Renewable Energy Laboratory, Golden, Colorado, 2017.

Petroli, Marcos. "Banking Architecture: Late Modernism and Exposed Concrete in Porto Alegre, Brazil." Paper presented at V Seminário Docomomo Sul, O Moderno No Contemporâneo: Herança E Prática, Porto Alegre, PROPAR-UFRGS, July 25–26, 2016. Petroli, Marcos. "Science Without Borders." Fully Funded Doctoral Fellowship. Sponsored by the Brazilian Council for Scientific and Technological Development (CNPq), August 2015–July 2019.

Petroli, Marcos. Summer Scholarship. Annual Doctoral Students Program, Canadian Centre for Architecture, Montreal, Canada. 2017.

Pinzon Latorre, Andres. "Society of Architectural Historians Graduate Student Annual Conference Fellowship," to present paper entitled "Pragmatism and Housing in Contemporary Bogotá."

Vranas Olsen, Cynthia. "Student Merit Award." Association of Licensed Architects, Chicago, Illinois. 2017.

Zagow, Maged. 200,000 Euro Research Fellowship Grant. Sponsored by the German Academic Exchange Services (DAAD), September 2014–December 2016.

Defended Dissertations

During the 2016–17 academic year, seven PhD students successfully defended their dissertations.

Alghamdi, Saad. "Toward 2030: Greening The Urban Superblock of Post-Oil Saudi Cities." PhD diss., Illinois Institute of Technology, 2017. Committee: Michelangelo Sabatino (chair), Peter Land, Luke Leung, Christen Nippert-Eng, Nicole Ditchman, Charlie Pipal.

Binabid, Jamil. "Green Facades in Arid Climate: Effects on Building Energy Consumption in Jeddah, Saudi Arabia." PhD diss., Illinois Institute of Technology, 2016. Committee: Peter Land (chair), Robert Krawczyk (co-chair), Michelangelo Sabatino, Ron Henderson, Jamshid Mohammadi, and Katia Perini (external).

Hassan, Ahmed Ali. "The Bioenclos@ Façade Panel: From Selection to Design, Assessment and Beyond." PhD diss., Illinois Institute of Technology, 2016. Committee: Mahjoub Elnimeiri (chair), Peter Land, Luke Leung, and M. Ishague Khan.

Jeong, Hyesun. "Pedestrian Urbanism: The Cultural Impact of Walkable Commutes and Transit Use in Chicago (United States), Paris (France), and Seoul (Korea)." PhD diss., Illinois Institute of Technology, 2016. Committee: Michelangelo Sabatino (co-chair), Terry Nichols Clark (co-chair), Martin Felsen, Vedran Mimica, Ullica Segerstrale, and Emily Talen (external). Kalkatechi, Maryam. "Design and Analysis of 3D Printed Construction Unit: An Algorithm to Enhance the Structure, Environmental Performance and Assembly of Masonry Units." PhD diss., Illinois Institute of Technology, 2016. Committee: Eva Kultermann (chair), Michelangelo Sabatino (co-chair), Frank Flury, Jamshid Mohammadi, and Branko Kolarevic (external).

Kalkatechi, Mina. "A Forgotten Foundation of The Bauhaus: Psychophysiological Aesthetics and the Inception of Modern Design Theory." PhD diss., Illinois Institute of Technology, 2016. Committee: Harry Mallgrave (chair), Michelangelo Sabatino (co-chair), Sean Keller, John Snapper, and Spyros Papapetros (external).

Pinzon Latorre, Andres. "The Influence of Courtyards: Thermal Comfort Study in Bogota, Colombia." PhD diss., Illinois Institute of Technology, 2017. Committee: Peter Land (chair), Michelangelo Sabatino, Brent Stephens, and Matthew Herman.

Vranas, Cynthia. "The Arts and Their Interrelations: Architecture, Music and Dance in 17th–19th Century France," PhD diss., Illinois Institute of Technology, 2017. Committee: Joseph Clarke (chair), Michelangelo Sabatino (co-chair).

Zagow, Maged. "Hybrid to Social Condenser: Competing Approaches to Mixed-Use Development." PhD diss., Illinois Institute of Technology, 2016. Committee: Michelangelo Sabatino (co-chair), Terry Nichols Clark (co-chair), Robert Krawczyk, Peter Land, and Ullica Segerstrale.

Visiting Scholars Spring 2017

Garcia Requejo, Zaida. Escola Técnica Superior de Arquitectura, Universidade da Coruña Forgotten Collaboration: Mies van der Rohe and the Structural Engineer Frank Kornacker

Salazar Lozano, Pilar.

Departamento de Proyectos (Escuela de Arquitectura. Universidad de Navarra) Un impulso transatlántico—canales de influencia de la arquitectura estadounidense en españa, 1945–1960 (with Professors Juan Miguel Otxoteorena and Luis Bilbao, 2018)

Recent Alumni News

Graduates of IIT's PhD Program in Architecture typically pursue academic careers in universities, obtain positions in research institutions, or return to professional practice.

Alghamdi, Saad. Former Assistant Professor in Architecture, College of Engineering, Alfaisal University, Riyadh, Saudi Arabia. Currently Deputy CEO, Aseer Development Authority, Saudi Arabia.

Hassan, Ahmed Ali. Architect at Adrian Smith + Gordon Gill Architecture, Chicago, Illinois.

Jones, Kristin. Adjunct Professor, Illinois Institute of Technology. Architect, Principal, Studio Integra, Ltd.. Oak Park. Illinois.

Kalkatechi, Mina. Lecturer in History of Architecture, The School of the Art Institute, Chicago, Illinois. Research Assistant, Documentary Feature on the New Bauhaus, Illinois Institute of Technology, Chicago, Illinois.

Zagow, Maged. Assistant Professor in Architecture, Department of Engineering, Tanta University, Cairo, Egypt.

Zagow, Maged. Adjunct Professor, Environmental Architecture Department, Arab Academy for Science, Cairo, Egypt.