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November 2015

**CarnegieMellon**

## *School of Architecture*

*Center for Building Performance & Diagnostics*

*Margaret Morrison Carnegie Hall 415*

*Pittsburgh, PA 15213-3890, USA*

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**Professor Khee Poh Lam** *Ph.D., RIBA*

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### *Academic and Professional Qualifications*

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Ph.D. (Architecture) Carnegie Mellon University, USA. 1994

Bachelor of Architecture (Hons) University of Nottingham, UK 1982

Bachelor of Arts (Architecture & Environmental Design)(Hons),  
University of Nottingham, UK. 1979

Registered Architect, Architects Registration Board, UK. 1984

Chartered Member, Royal Institute of British Architects, UK. 1984

### *Appointments*

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2003 -	Professor (Tenured) School of Architecture, Carnegie Mellon University
1998 – 2003	Associate Professor (joint appointment in the Department of Architecture and Department of Building, NUS since 2000)
1984 - 1998	Lecturer/Senior Lecturer School of Architecture, NUS
1982 - 1984	Architect, Nottinghamshire County Council Architects Department, County Hall, West Bridgford, Nottingham, NG2 7QP, UK.
2015	Visiting Professor School of Design & Environment, National University of Singapore
2009 - 2015	Adjunct Professor School of Architecture, Chinese University of Hong Kong
2011 - 2014	Visiting Professor, Tsinghua University, Beijing, P R China
2007 - 2010	Adjunct Professor, Xian Jiaotong University, P R China

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## CARNEGIE MELLON UNIVERSITY

### ADMINISTRATIVE RESPONSIBILITIES

2012-2015 Chair, PhD (Building Performance & Diagnostics) Program  
2008-2012 Chair, MS(Architecture) Program  
2003-2007 Director, Graduate Programs

### APPOINTMENTS AND SERVICES

2014-2017 University Research Review Committee  
2011-2014 College of Fine Arts Council / College Review Committee  
2008 University International Strategic Planning Committee  
S08-48405: 4th Year Architecture Design Studio Coordinator  
2007 School of Architecture Promotion & Tenure Review Committee Chair  
Carnegie Mellon University Presidential Review Committee  
2007-2008 Carnegie Mellon Fulbright Scholars Program Committee  
2005-2007 University Committee on Tenure Appointments  
2004-2005 Presidential Appointee, Faculty Senate

## NATIONAL UNIVERSITY OF SINGAPORE

2000-2002 Head, Department of Building, School of Design and Environment  
1998-2000 Acting Dean, Faculty of Architecture, Building & Real Estate  
1998-1999 Director, Graduate School of the Built Environment  
1996-1998 **School of Architecture**  
Director of B.Arch/M.Arch Degree Programme  
Member of School Management  
Committee Member of School Corporate Planning Committee  
Chairman of Dissertation Committee  
Year 5 Design Course Leader  
Chairman of B.Arch/M.Arch. Admission Committee  
Chairman of Academic Review Committee  
Chairman of RIBA 2000 Visitation Committee  
Member of Career Guidance Committee  
Member of Editorial Board for the international refereed Journal of Southeast Asian Architecture  
**Faculty of Architecture, Building and Real Estate**  
Vice-Dean, Faculty of Architecture and Building  
Member of Faculty Strategic Planning Team  
Member of Research and Postgraduate Committee  
Member of Board of Selection for the Faculty of Architecture and Building  
1995-97 **National University of Singapore**  
Represent Faculty in the following University Committees:  
Alumni UEF Committee  
Committee for Seminar on teaching Methodology  
PS21 Committee  
University Foundation Module Committee

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University Modular Committee

Member of Senate sub-committee on Entrance Examination for Special Candidates

1995-96

**School of Architecture**

Director of Bachelor of Architecture Degree Programme  
Member of School Management  
Chairman of Dissertation Committee  
Year 5 Design Course Leader  
Chairman of B.Arch Admission Committee  
Chairman of Academic Review Committee  
Chairman of RIBA 2000 Visitation Committee  
Practical Training Advisor  
School Handbook Editor  
Member of Career Guidance Committee  
Member of Aptitude Test Committee  
Member of Editorial Board for the international refereed Journal of Southeast Asian Architecture

**Faculty of Architecture, Building and Real Estate**

Vice-Dean, Faculty of Architecture and Building  
Member of Board of Selection for the Faculty of Architecture and Building

1994-95

**School of Architecture**

Building Construction Course Leader  
Building Technology Course Leader  
Building Services Course Leader  
Member of School Management Committee  
Coordinator of BA(AS) Construction Courses  
Chairman of Academic Review Committee, School of Architecture  
Member of Editorial Board for the international refereed Journal of Southeast Asian Architecture  
Chairman of Eco-Architecture Design Competition Committee

1988-89

**School of Architecture**

Coordinator for BA(AS) Building Construction and Building Structure Courses  
Member of School Management Committee  
Member of the Working Committee for the RIBA Visit in Sept. 1990

1987-88

**School of Architecture**

Coordinator of BA(AS) Building Construction and Building Structure Courses  
Member of School Management Committee  
Member of organising Committee for the Inter-Faculty Conference on "Towards Excellence in the Built Environment"

1986-87

**School of Architecture**

Coordinator of BA(AS) Building Construction and Structure Courses  
Member of School Management Committee

1985-86

**School of Architecture**

Editor, School of Architecture Newsletter

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**APPOINTMENTS AND SERVICES**

**USA and INTERNATIONAL**

*Industry*

International Energy Agency (IEA) Annex 66: Definition and Simulation of Occupant Behavior in Buildings. Co-Leader of Subtask E: Applications in building design and operations, 2003 – 2007.

Invited to participate in the USA President's Council of Advisors on Science and Technology (PCAST) Workshop on *Technology and the Future of Cities*. 12 Feb 2015, Palo Alto, CA.

Reviewer for the Natural Sciences and Engineering Research Council of Canada (NSERC) - Discovery Grant proposal. Nov 2014.

Reviewer for the National Science Foundation Environmental Sustainability Program (Sustainable Buildings) – research proposals, June 24-25, 2014, at the NSF.

Reviewer for the U.S. Department of Energy's Building Technologies Office (BTO) - Program Peer Review, April 22 – 25, 2014, DoubleTree Crystal City Hotel, Arlington, VA.

Member of the Board of Directors, Global Buildings Performance Network (2012 - 2015).

Member of the Board of Directors, The Energy Foundation (2008 - 2017)

Consultant to The Energy Foundation - China Sustainable Energy Program (2008 - )

Member, Protocol Committee of the International Performance Measurement and Verification Protocol (IPMVP), USA. (2002 - 2004 )

Member of the Dupont (Asia) Advisory Council (2001)

*Academic*

Member, Scientific Committee, Simulation for Architecture and Urban Design 2015 (SimAUD), 12-15 April, 2015, Washington DC, USA.

Member, Editorial Board, Buildings, MPDI, Switzerland, (2013- ).

International Referee, iNTA-SEGA 2009: Bridging Innovation, Technology and Tradition. 2-4 December 2009, Bangkok, Thailand

Member, inaugural Editorial Board, Journal of Building Performance Simulation, Taylor and Francis, UK, (2008 - )

Member, inaugural Editorial Board, Building Simulation: An International Journal, Springer and Tsinghua University Press, (2007 - )

International Reviewer, 24th international conference on Passive and Low Energy Architecture (PLEA), 22 - 24 November 2007, Singapore

External Examiner for a PhD thesis, Department of Civil & Environmental Engineering, University College Cork, Ireland. (September 2006)

Member, EuroPIA.10 International Advisory Board, 10th International Conference on Design Sciences and Technology, 13-15 September 2005,

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Damascus, Syria

Member, International Advisory Board, International Journal of Lighting Research and Technology, published by Edward Arnold (Publishers) Ltd, London, UK. (June 2000-June 2003)

Appointed by the President of Carnegie Mellon University as Co-Chairman of the Advisory Board to the School of Architecture at CMU (May 2001)

External Examiner for a PhD thesis, Faculty of Architecture, Delft University of Technology (June 2001)

Member of the International Scientific Committee for the CIB World Building Congress 2001, Wellington, New Zealand. (September 2000)

Member, International Program Committee, 17th International Symposium on Automation and Robotics in Construction, 18-20 September 2000, Taipei, Taiwan

External Examiner for the Architecture Program at the Faculty of Architecture, University Teknologi Mara, Shah Alam, Malaysia (2000 - 2002)

Member, Editorial Board, The Real Estate Times. (International Refereed Journal by Pidemco Land Research, Singapore). (November 1998 - 2003)

Member of the Scientific Committee, Building Simulation '99 International Conference, organized by the International Building Performance Simulation Association, to be held in Kyoto, Japan, 13-15 September 1999. Also provided service as a reviewer.

Member, Editorial Board, Journal of Southeast Asian Architecture. (International Refereed Journal published by the School of Architecture, NUS). (1997 - 1999)

Founding member of the Board of Editors, The International Journal of Corporate Real Estate. (International Refereed Journal of the Institute of Corporate Real Estate, NACORE, USA, published by Henry Stewart Publications, UK). (November 1997 - ongoing). Also provided service as reviewer.

## **SINGAPORE**

### *Government*

Appointed by Building and Construction Authority as a member of the international expert panel to review Singapore's Building Energy Efficiency Technology Roadmap, July 2013 – February 2014.

Appointed by Building and Construction Authority as a member of the inaugural C21 Best Practices Award Committee (2000- 2003)

Resource Person for the Construction 21 Steering Committee, chaired by the Permanent Secretary of Manpower Ministry, Dr. Tan Chin Nam. (May 1998 - October 1999)

Member of the Constructions 21: Industry Practices & Techniques Group. (September 1998 - October 1999)

Member of the Industry Committee on Manpower Projections and Needs of the Constructions Industry in Singapore, convened by the Construction Industry Development Board. (1996)

### *Industry*

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Member of the Jurong Town Corporation Design Review Committee (2000–2002)

Member, Housing and Urban Design Committee, Singapore Institute of Architects. 1995/96, 1996/97, 1997/8, 1998/99  
Appointed by the Council of the Singapore Institute of Architects as a member of the Panel of Jury for the inaugural "SIA GOLD MEDAL AWARD for Lifetime Contribution to Architecture", to be awarded to an architect in Singapore. (From January 1998 for two terms)

Member of the Committee for the Outstanding Architectural/Engineering Firms Awards 1999, Society of Project Managers, Singapore. (October 1998)

Member of the Panel of Judges for the 1998 Singapore Institute of Landscape Architects Professional Award Competition. (November 1998)

Member of the panel of assessors for the Eco-Building Architectural Design Competition organised by the Singapore Institute of Architects, Estate Developers' Association of Singapore and the Faculty of Architecture and Building, NUS. (October 1995)

Member of the multi-disciplinary study team from Jurong Town Corporation to visit industrial developments in Japan (28 May - 8 June 1995).

#### *Academic*

Ministry of Community Development - The Institute of Policy Studies.  
Conference on "Ageing in Singapore: Facing Challenges, Seizing Opportunities", 24-25 September 1999. Orchard Hotel, Singapore Chairman, Parallel Workgroup on Housing and Land Use Policies.

URA - The Institute of Policy Studies.  
World Conference on Model Cities, 19-21 April 1999. Westin Stamford, Singapore. Moderator, Sectorial Session on "Identity and the City"

Appointed as a member of the Validation Panel for the Diploma in Architectural Technology Course at Singapore Polytechnic (December 1997)

#### **National University of Singapore**

Member of the panel of assessors for the Harley Davidson Bike Centre design competition organised by the School of Architecture and Harley Davidson, Singapore (November 1995)

Member of the panel of assessors for the NUS Centre for the Arts logo design competition organised by the School of Architecture and CFA

Designed and procured the construction of the Faculty booth at the NUS Exhibition – University of the 21<sup>st</sup> Century held on Alumni Day (September 1996). Also conceptualized and coordinated the fabrication of a sculpture made of scrap material contributed by various departments in the University

Member of the Building & Technical Planning Committee, Tropical Marine Science Institute, NUS (April - December 1998)

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#### **AWARDS AND CITATIONS**

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**ACADEMIC and INDUSTRY AWARDS**

Best Innovative Workflow Award, ASHRAE LowDown Showdown modeling challenge sponsored by the Department of Energy (DOE) and the National Renewable Energy Laboratory (NREL). 1 October 2015.

Phipps Conservatory & Botanical Gardens Center for Sustainable Landscapes:

- (a) 2014 Innovative Star Award from the Alliance to Save Energy, for exceeding four of the highest green construction standards - a feat that has never been achieved before - and achieving net-zero annual energy usage through its energy-efficiency Center for Sustainable Landscapes.
- (b) 2014 Engineering News-Record's Best Global Green Project Award.

2013 Alexander Schwarzkopf Prize for Technological Innovation from the National Science Foundation "for exemplary research contribution to technology innovation and positive impact on technology, industry and the society as a whole".

IBM Faculty Award 2010

Autodesk APHACK 2.0 International Competition, Dec. 2013- 3<sup>rd</sup> Place Winner: Urban Energy Modeling.

**PATENTS****METHODS AND SYSTEMS FOR DIGITAL INFORMATION MODELING FOR CODES AND STANDARDS COMPLIANCE**

**Application number:** 20140372859

**Abstract:** This invention describes methods and systems to efficiently map and extract information from digital representations of buildings for use for a variety of purposes, including but not limited to the performance of dynamic simulations of building performance, and for codes and standards compliance.

**Type:** Application

**Filed:** June 13, 2014

**Issued:** December 18, 2014

**Assignee:** CARNEGIE MELLON UNIVERSITY, a Pennsylvania Non-Profit Corporation

**Inventors:** Khee Poh Lam, Jie Zhao, Rongpeng Zhang, Omer T. Karaguzel

**OPTIMAL SELECTION OF BUILDING COMPONENTS USING SEQUENTIAL DESIGN VIA STATISTICAL BASED SURROGATE MODELS**

**Application number:** 20140365180

**Abstract:** A surrogate model to a building simulation model is built and used for finding a combination of building components that optimize energy use in a building. The surrogate model may be built iteratively using design points comprising a different combination of building product properties that maximize a predefined expected improvement function.

**Type:** Application

**Filed:** June 5, 2013

**Issued:** December 11, 2014

**Assignees:** Carnegie Mellon University, International Business Machines Corporation

**Inventors:** Khee Poh Lam, Young Min Lee, Fei Liu, Jane L. Snowdon, Jeaha Yang, Rui Zhang

**DESIGN AWARDS**

ASEAN 2007 Energy Award: New and Existing Buildings category, National Library Building. Singapore.

Building and Construction Authority, Singapore Green Mark Scheme - Platinum Award, National Library Building, Singapore, (May 2005)

Winner of the international design competition as the Total Building Performance group leader, with T R Hamzah & Yeang Architects -National Library Building, Singapore. (May 1999 - January 2000)

**DESIGN PROJECT CITATIONS**

National Library Board, Singapore Building Project citations in:

Visions of the National Library. The Straits Times, 2 October 1999

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A Quiet Revolution. Cover story in Experience Singapore, Issue 13, April 2002. (A newsletter of the Singapore Cooperation Program)

National Library bid to save power rewarded. News published in all 4 major language newspaper in Singapore: The Straits Times, Lianhe Zaobao, Berita Harian, Tamil Murasu, (12 May 2005)

The Urban Redevelopment Authority (URA) Centre, Singapore citation in:

Distinctively modern... The URA Centre. Skyline, Nov/Dec 1999  
U R an A. The Straits Times, 27 November 1999

**INTERNATIONAL  
BIBLIOGRAPHIC CITATION**

Marquis Who's Who in Science and Engineering, since 7th Edition, 2003-2004  
Marquis Who's Who in America, since 59th Edition, 2005  
Marquis Who's Who in the World, since 22nd Edition, 2004  
Marquis Who's Who in American Education, since 2007-2008

**RECOGNITION OF SERVICE**

Certificate of appreciation from the International Performance Measurement & verification Protocol Inc., for valuable contributions to the development of International Performance Measurement and Verification Protocol (11 Dec 2003)

Certificates of Appreciation from the Singapore Institute of Architects (SIA) for contribution and services rendered as:

SIA Gold Medal Award Jury Panel (2002 - 2003)  
SIA Gold Medal Award Jury Panel (1999 - 2000)  
SIA Housing & Urban Design Committee (1995 - 1998)

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**LIST OF RESEARCH  
PROJECTS UNDERTAKEN**

**CARNEGIE MELLON UNIVERSITY**

**As Principal Investigator**

1. Computational Method for the Calibration of a Whole Building Energy Model – A Japanese Case Study. Toshiba Corporation, Japan. \$460,000.00 (17 Aug 2015 – 16 Aug 2017).
2. The DOE Energy-Efficient Building Systems Design Hub: Greater Philadelphia Innovation Cluster for Energy Efficient Buildings. US Department of Energy. \$4.96 million (Oct 2010 - Apr 2016).
3. Dynamic Life-cycle Digital Information Modeling of Building Industry Products and Processes for Codes and Standards Compliance. Carnegie Mellon University Gap Funding \$25,000.00 and Innovation Works \$39,975.00. (Apr 2013 – Mar 2014).
4. Development of a decision support tool for the selection of optimum glazing systems applicable to high-performance and energy efficient commercial office buildings in different climatic conditions. PPG Industries, Pittsburgh, PA, USA. \$35,000.00. (Mar 2012 - Jan 2013).
5. Simulation-based Performance Assessment of the Pingry School Headmaster's Residence, NJ. The Stone House Group. \$10,000.00 (Apr- Aug 2010)
6. Development of a Web-based Information Technology Infrastructures and Regulatory Repository Frameworks for Green Buildings in China. The Energy Foundation. \$190,000.00 (Sep 2009 - Aug 2011).
7. Impact of Shading Control Strategies on Heating and Cooling Loads of a "Typical" Office Building in Different Climatic Contexts in the USA. Somfy SAS, France.



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\$24,000.00. (Feb - Aug 2007).

8. Assessment of Physical and Computational Airflow Analysis and Evaluation Tools for Building Design. Konstrukt (on behalf of Northwest Alliance for Energy Efficiency. \$10,100. (Nov - Dec 2005)
9. Guidelines and Goals for Green and Healthy Hospital Operations. Children's Hospital of Pittsburgh Foundation, with support from Heinz Foundation. \$25,000 (Sep 2004 - Feb 2005)
10. Energy Modeling Tools Assessment for Early Design Phase. Northwest Alliance for Energy Efficiency. \$27,000 (Mar. - Dec. 2004)
11. Integrated Concurrent Design of High Efficiency Commercial Buildings. United Technologies Research Center. NIST ATP Program. \$431,078.00. (Oct 2004 - Nov 2007)

#### **As Co-Principal Investigator**

1. NSF RCN-SEES: Predictive Modeling Network for Sustainable Human-Building Ecosystems (SHBE). \$62,500.00 (out of \$652846.00). (Sep 2013 – Aug 2018).
2. BUILD- Barriers, Understanding, and Integration - Life Cycle Development. NSF EFRI SEED. \$430,229.00 (out of \$2 million). (Oct 2010- Oct 2014)
3. Modeling the Performance of Energy Recovery Technology for Packaged, Rooftop HVAC Equipment. United Technologies Research Center. \$70,000. (Jan - Oct 2004)

#### **Research Gifts/Fellowships**

1. The Future of Building Energy Management Systems. Autodesk. \$30,000.00 (Sep 2015 – Dec 2015).
2. Whole Building Energy Modeling and Calibration – A Carnegie Mellon University Building Case Study. Toshiba Corporation, Japan. \$92,871.00 (May 2014 – Mar 2015).
3. Multiple Environmental Sensing Strategies for Determining Occupancy in Building. Robert Bosch Corporation. \$99,290.00 (Dec 2006 - Jun 2008).
4. Information Technology Enabled Sustainable Testbed (ITEST). Siemens Corporation. \$75,880.00 (Dec 2006 – Jun 2008).
5. Residential Building Energy Modeling. IBACOS, Pittsburgh, PA. \$23,000.00. (Sep 2005 – Aug 2006).

#### **NATIONAL UNIVERSITY OF SINGAPORE**

##### **As Principal Investigator**

1. R-296-000-068-112 *Integration of CAD and Thermal Simulations Through Industry Foundation Class (IFC) Product Model*, in collaboration with NovaCITYNETS, Singapore, and Temasek Polytechnic. (NUS funded S\$52,000.00). (1 Mar 2003 -29 Feb 2004)
2. R-296-000-052-112 *Mapping of Industry Building Product Model for Detailed Thermal Simulation and Analysis*. (NUS funded S\$29,350.00), in collaboration with NovaCITYNETS, Singapore. (1 Jan - 30 Jun 2002)
3. RP3982110 *SEMPER II - Digital Building Models for Intranet Collaborative Design Computing*. The project was awarded a research grant of S\$1,105,600.00, to be

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co-funded by NSTB (50%) and NUS & TP (50%). This arose from a Memorandum of Understanding for collaborative research between NUS, Carnegie Mellon University, USA and Temasek Polytechnic, under the SingAREN - vBNS high-speed network link between USA and Singapore. (13 May 1999 - 13 May 2002)

4. RP950050 *The Establishment of Architectural and Technical Standards and Guidelines for the Design and Maintenance of Marine Mammal Facilities*. (NUS funded S\$152,400.00). (23 Feb 1996 - 23 Feb 1998)
5. RP950015 *Mapping of the Sky Luminance Distribution and Computational Prediction of Daylighting Performance in Singapore*. (NUS funded S\$125,700.00). (26 August 1995 - 25 August 1997)

#### **As Collaborator**

1. RP 991020 *To Plan and Design an Innovative Housing Project (32 Acre) at Dondra, Sri Lanka, Integrating Relevant Development Potentials Within and Around the Site*. (NUS funded S\$ 30,000.00). (16 June 1999 - 16 June 2001)
2. *A Pilot Study into the Feasibility of Applying an Integrated and Total Building Performance Method to the Evaluation of School Buildings in Hong Kong*. (Funded by the Chinese University of Hong Kong). (Oct. 1999 - Oct. 2000)
3. RP982073 *A study of the Use of Performance Based Simulation Tools for Building Design and Evaluation in Singapore*. (NUS funded S\$8,200.00). (7 Dec 1998 - 31 Jul 1999)
4. This research produced an important IRJ paper that documented for the first time the status of the use of computer simulation tools for building performance evaluation in the Singapore building industry. This work also provided an important foundation for subsequent research activities in this field.
5. RP3981040 *Study of Daylight Attenuation Through Windows in Urban Environments*, in collaboration with Prof. Peter Tregenza, School of Architectural Studies, University of Sheffield, UK (NUS funded \$169,600.00). (1 Oct 1998 - 1 Oct 2000)
6. Established a Memorandum of Understanding between the Faculty of Architecture & Building and Pidemco Land Limited for research collaboration in the field of *Total Building Performance and Building Services/Automation Systems*. (Funding from Pidemco Land Limited - \$118,000.00). (February 1998 - February 2000)
7. RP972051 *An Integrated Building Assessment Method Using the Total Building Performance Approach*. (NUS funded \$177,300.00). (February 1998 - January 2000)
8. RP960019 *Applying Advanced Lighting Visualization Techniques to Architectural Design in the Local Context*. (NUS funded S\$62,780.00). (15 August 1996 - 1 June 1998).

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#### **PUBLICATION JOURNAL PAPERS**

1. Lam, K P, *Urban Study and conservation in Tiong Bahru, Singapore*. SIAJ: Singapore Institute of Architects Journal, 136 (June 1986): 44-47. (Singapore).
2. Lam, K P and R A Hyde, *Wrestling with the productivity curve - CAD in architecture*. SIAJ : Singapore Institute of Architects Journal, 144 (October 1987): 41-43. (Singapore).
3. Lam, K P and J D Harrison, *Towards a defects - free built environment*. Building Technology and Management, Annual Journal of the Building

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- Technology Society, Tunku Abdul Rahman College, 15 (1989): 17-22. (Malaysia).
4. Mahdavi, A and K P Lam, Dynamic Analysis and Visualization of Water Vapor Diffusion Through Building Components. ASHRAE Transactions, Part No. 1, 99 (1993): 288-296. (United States).
  5. Lam, K P, Design for Eco-Architecture: A Competition for Year 4 Architecture Students. SIAJ : Singapore Institute of Architects Journal, 187 (November / December 1994): 38-41. (Singapore).
  6. Mahdavi, A and K P Lam, Multiple strategies toward complex representation in building simulation. Building Research Journal, 3, no. 1 (1994): 43-55. (United States).
  7. Tham, K W, K P Lam and S E Lee, Eco-Building: A Systemic Phenomenon. SIAJ : Singapore Institute of Architects Journal, 187 (November /December 1994): 53-60. (Singapore).
  8. Powell, R and K P Lam, Low-income housing in India. Singapore Architect: Journal of the Singapore Institute of Architects, No. 195, 1997, 88-95. (Singapore).
  9. Lam, K P, A Mahdavi and R Ries, Environmental Implications of Alternative Settlement. Planews, 16 (1 February 1998): 65-71. (Singapore).
  10. Lam, K P, A Mahdavi, M B Ullah, E Y Y Ng, V Pal and V. Pal, Evaluation Singapore. International Journal of Lighting Research and Technology, 31, no.1 (1999 January 1999): 13-17. (United Kingdom).
  11. Chin, L K H and K P Lam, Implementing quality in property management. Property Management, 17, no.4 (1999): 310-320. (United Kingdom).
  12. Lam, K P, A Mahdavi and V Pal, Empirical Evaluation of Solar Radiation, Sky Luminance and Daylight Prediction Models. Journal of the Illuminating Engineering Society, Vol. 28, No.1 (Winter 1999):30-36. (United States).
  13. Wong, N H, K P Lam and H. Feriadi, The use of performance-based simulation tools for building design and evaluation-a Singapore perspective. Building and Environment, 35, 8 (2000): 709-736.
  14. Ng, E.Y.Y., T Nakagura, W Wu and K P Lam, Advanced lighting simulation in architectural design in the tropics. Automation in Construction, Vol. 10, No 3 (2000): 365-379. (The Netherlands).
  15. Lam, K P, A Mahdavi, S Gupta, N H Wong, R Brahme and Z Kang, Integrated and distributed computational support for building performance evaluation. Advances in Engineering Software, 33 (2002):199-206.
  16. Wong, N H, A Mahdavi, J Boonyakiat and K P Lam, Detailed multi-zone air flow analysis in the early building design phase. Building and Environment, 38 (15 March 2003): 1-10. (United Kingdom).
  17. Ullah, M.B., K P Lam, K W Tham, P. Tregenza and J.T. Kurniawan,
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Attenuation of diffuse daylight due to dust deposition on glazing in a tropical urban environment. *Lighting Research and Technology*, 35, 1 (2003): 19-29. (United Kingdom).

18. Wong, N H, K P Lam and H. Feriadi, Computer-based performance simulation for building design and evaluation - The Singapore perspective. *Simulation & Gaming - An International Journal of Theory, Practice and Research*, Vol. 34, Issue 03 (September 2003). (United Kingdom).
19. Lam, K P, Building performance simulation in the Singapore construction industry IT network. *Journal of Architectural and Planning Research*, Vol. 21, No. 4, (Winter 2004): 312-320, Locke Science Publishing Co. Inc. (United States).
20. Loftness, V, K P Lam and V Hartkopf, Education and environmental performance-based design: a Carnegie Mellon perspective. *Building Research & Information*, Vol. 33, No. 2 / March-April 2005, pp. 196 - 203. (Routledge, United Kingdom).
21. Lam, K P and K Yeang, Computational building performance modelling and ecodesign. *Architectural Design*, Vol. 79, No. 5 (Sep/Oct 2009): 126-129, John Wiley & Sons (United Kingdom).
22. Dong, B, A Burton, K P Lam, M Höynck, R Zhang, Y S Chiou and D Benitez, An information technology enabled sustainability test-bed (ITEST) for occupancy detection through an environmental sensing network. *Energy and Buildings* Volume 42, Issue 7, July 2010, pp. 1038-1046. John Wiley & Sons, United Kingdom.
23. Zhang, R, Y J Zhang, K P Lam and D H. Archer, A prototype mesh generation tool for CFD simulations in architecture domain. *Building and Environment* Volume 45, Issue 10, October 2010, pp. 2253-2262. Elsevier, United Kingdom.
24. Dong, B, and K P Lam, Occupant behavior pattern detection based on a large scale environmental sensor network. *Eco-City and Green Buildings* No. 5, 2011. pp. 50-55. 建筑能源和舒适度管理-基于大尺度环境传感器网络用户行为模式识别的研究. 生态城市与绿色建筑. No.05, 2011 主编:袁滨 出版:中国出版期刊中心. ISSN: 1672-9269.
25. Zhang R and K P Lam, Comparison of building load performance between first principle based and implementable shading control algorithm. *Building Simulation: An International Journal*, Vol. 4, No. 2, June 2011, pp. 135-148. Springer and Tsinghua University Press.
26. Dong, B and K P Lam, Building energy and comfort management through occupant behavior pattern detection based on a large-scale environmental sensor network. *Journal of Building Performance Simulation*, Vol. 4, No. 4, 2011, pp. 359-369, Taylor and Francis, UK.
27. Zhang, R, K P Lam, Y S Chiou, B Dong. Information-theoretic environment features selection for occupancy detection in open office spaces. *Building Simulation: An International Journal*, Vol. 5, No. 2, Jun 2012, pp. 179-188. Springer and Tsinghua University Press.

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28. Zhao, J and K P Lam, Influential factors analysis on LEED building markets in U.S. East Coast cities by using Support Vector Regression. *Sustainable Cities and Society*, 5, 37-43. June 2012.
  29. Lam, K P, R P Zhang, H P Wang, B Dong, and R Zhang, Development of web-based information technology infrastructures and regulatory repositories for green building codes in China (iCodes). *Building Simulation: An International Journal*, Vol. 6, No. 2, June 2013, pp. 195-205. Springer and Tsinghua University Press.
  30. Dong, B and K P Lam. A Real-Time Model Predictive Control for Building Heating and Cooling Systems based on the Occupancy Behavior Pattern Detection and Local Weather Forecasting. *Building Simulation: An International Journal*, Vol. 7, No. 1, Feb 2014, pp. 89-106. Springer and Tsinghua University Press.
  31. Karaguzel, O T , R P Zhang, K P Lam. Coupling of Whole-Building Energy Simulation and Multi-Dimensional Numerical Optimization for Minimizing the Life Cycle Costs of Office Buildings. *Building Simulation: An International Journal*, Vol. 7, No. 2, Apr 2014, pp. 111-121. Springer and Tsinghua University Press.
  32. Jie Zhao, Khee Poh Lam, B. Erik Ydstie & Omer T. Karaguzel. EnergyPlus model-based predictive control within design–build–operate energy information modelling infrastructure, *Journal of Building Performance Simulation*, DOI: 10.1080/19401493.2014.891656, 2014, Taylor and Francis, UK.
  33. Zhao, J, B Lasternas, K P Lam, R Yun, V Loftness . Occupant behavior and schedule modeling for building energy simulation through office appliance power consumption data mining, *Energy and Buildings*, 82(2014), pp. 341-355, Elsevier, United Kingdom.
  34. Zhao, J., Lam, K.P., Biswas, T., Wang, H. (2015). An online platform to automate LEED energy performance evaluation and submission process. *Construction Innovation: Information, Process, Management*. J Goulding and M Alshawi (eds), Vol. 15 Iss: 3, pp.313 – 332, Emerald Publishing Group, UK.
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**KEYNOTE/PLENARY/  
INVITED PRESENTATION**

1. Lam, K P, A Total building performance and diagnostics approach to designing healthy and holistic healthcare environments, Healthcare Facilities Planning & Design Conference, 16-18 December 2003, Raffles City Convention Centre, Singapore.
2. Lam K P, Intelligent Building - Interfacing the “virtual” and the “real”, 2006 Symposium on Digital Life Technologies-Building a Safe, Secured and Sound (3S) Living Environment, 1-2 June 2006, National Cheng Kung University, Tainan, Taiwan.
3. Loftness V L, V H Hartkopf, K P Lam, Sustainability and health are integral goals for the built environment, Healthy Buildings 2006, 4-8 June 2006, Lisboa, Portugal.
4. Lam K P, Enhancing health, productivity and energy management through BIM, Federal Environmental Symposium, 4- - 6 June 2007, National Institute of Health, Washington, D.C.
5. Lam K P, The National Library Building, Singapore, Living Architecture Seminar, Somfy SAS, 19 - 21 September 2007, Frankfurt, Germany.
6. Lam K P, Design of high performance green buildings, International Mayors’ Forum on Sustainable Urban Development, 15-16 November 2007, Tianjin, P R China.
7. Lam K P, Zen and the art of building information modeling: BIM@CMU. Ecobuild Fall - Sustainable, Green and High Performance Solutions for the Built Environment, 13 December 2007, Washington Convention Center, Washington, D.C.
8. Lam, K P, Energy modeling tools for early design phase. An overview and discussion panel. Cascadia Region Green Building Council and Betterbricks, Seattle, WA, March 13, 2008 and Portland, OR, March 14, 2008.
9. Lam, K P, Building as Power Plant: Integrating renewable energy technologies in green building design, Chinese and International Conference on the Use of Renewable Energy Sources in Urban Areas Architecture, Shenzhen, China, May 15 - 16, 2008.

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10. Lam, K P, Critical path to delivering successful intelligent and environmentally responsive buildings. Presented at the Construction Innovation Center Networking Breakfast Seminar, Duke Energy Center, Cincinnati, 22 May 2008.
  11. Lam, K P, China Sustainable Energy Program: An overview of recent activities and future outlook, The Energy Foundation Board of Directors Meeting, Washington DC, 6 November 2008.
  12. Lam, K P, "In Design: Sustainability Redefined" Forum, AIA Columbus, Ohio, 13 November 2008.
  13. Lam, K P, "The human dimension in product and process modeling of green building design". The Jerusalem Seminar in Architecture: Green Design - From Theory to Practice, Jerusalem, Israel, 25-27 January 2009.
  14. Lam, K P, Accelerating greener communities: planning, building and marketing green. Panel discussion. BusinessWeek Global Green Business Summit, Renaissance Tianjin TEDA Hotel and Convention Center, China, 7-8 June 2009.
  15. Lam, K P, iCODES – A web based repository of Green Building Standards and Codes in China. 6th International Conference on Intelligent, Green and Energy-Efficient Building and New Technologies and Products Expo Beijing, China, 29 – 31 March 2010.
  16. Lam, K P, Teaching old buildings new tricks: A regenerative paradigm for green retrofit. Keynote lecture at the 3rd Israel Green Build Convention in Tel Aviv on 26 Jan 2011.
  17. Lam, K P, Buildings That Learn: A Model for Integrated Building Design and Operation Processes. 7th International Conference on Intelligent, Green and Energy-Efficient Building and New Technologies and Products Expo Beijing, China, 28 – 29 March 2011.
  18. Lam, K P, Through the looking glass and what we may find there. Featured Presentation at the PPG International Certified Fabricator Program Conference at the Marina Bay Sands – Singapore on January 9-11, 2012.
  19. Lam, K P, Greater Philadelphia Innovation Cluster (GPIC) for Energy Efficient Buildings. Presentation at the Building & Construction Authority Building Energy Efficiency Seminar, MND Building, Singapore on January 12, 2012.
  20. Lam, K P, Development of whole building energy performance as benchmarks for retrofit projects. 8th International Conference on Intelligent, Green and Energy-Efficient Building and New Technologies and Products Expo Beijing, China, 29 – 31 March 2012.
  21. Lam, K P, Dynamic life-cycle information modeling of building industry products and processes for codes and standards compliance. Department of Architecture, Zhejiang University, Hangzhou, China. 15 March 2013.
  22. Lam, K P, Dynamic life-cycle information modeling of building industry products and processes for codes and standards compliance. World Summit on

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23. Lam, K P, Integrated simulation based design optimization of office building envelopes for the minimization of life cycle costs. 9th International Conference on Intelligent, Green and Energy-Efficient Building and New Technologies and Products Expo Beijing, China, 1 – 3 April 2013.
24. Lam, K P, An integrated design approach for high performance buildings. 8<sup>th</sup> Energy Forum, Sopot, Poland, 16-18 December 2013.
25. Lam, K P, Urban Energy Information Modeling. Urban Land Institute Seminar, Beijing, China, 7 March 2014.
26. Lam, K P, Phipps Center for Sustainable Landscapes: Harmonizing the natural and the built environment. Surface Conversations 1.5, College of Design, Architecture, Art and Planning, University of Cincinnati, OH, 3 October, 2014.
27. Lam, K P, International Energy Agency Energy in Buildings & Communities Programme Annex 66: Definition and simulation of occupant behavior in buildings. 9th Energy Forum, Karpacz, Poland, 22-24 January 2015.
28. Lam, K P, Smart cities – investment for the future generations. 4th CMU Summit on US-China Innovation and Entrepreneurship, Carnegie Mellon University, Pittsburgh, PA, USA, 26 April 2015.
29. Lam, K P, Dynamic life-cycle energy information modeling. Inaugural Zero Carbon Building Conference (Decarbonising High-rise Buildings in Sub-tropical and High Density Cities), Hong Kong, 15 Oct 2015.
30. Lam, K P, Interfacing the “virtual” and the “real” in product and process modeling of whole building energy performance. Workshop Series of Hong Kong Zero Carbon Partnership (Public and Stakeholder Engagement for Building Towards Zero Carbon), Hong Kong University, Hong Kong, 16 Oct 2015.

**PAPERS FOR SEMINAR,  
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2. Lam, K P, M B Ullah, E Y Y Ng and V Pal, Modeling sky luminance distribution for Singapore. In Seminar on Daylight Measurement and Application in the Asia Pacific Region, 10 January 1997, National University of Singapore, Singapore. Singapore, 10 January 1997.
3. Lam, K P, Creative Thinking. Paper presented at Seminar: Creative Thinking, 17 May 1997, Centre for Development of Teaching & Learning, NUS, Singapore, Singapore.
4. Lam, K P, Digital Building Models for Intranet Collaboration Design

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5. Lam, K P, Architectural education in the new millennium. Paper presented at A National Seminar on Architectural Education Policy and Professional Competence in Indonesia, 6-7 October 2000, Institut Teknologi Bandung, Bandung, Indonesia.
  6. Lam, K P, A total building performance approach to designing schools. Paper presented at Designing Better Schools Environmentally, 16 September 2000, Department of Architecture, Chinese Univ of Hong Kong, Hong Kong.
  7. Lam, K P, Intelligent Building – Interfacing the Virtual and the Real. Presented at School of Architecture, Xian Jiaotong University, 21 June 2006.
  8. Lam, K P, Enhancing Health, Productivity and Energy Management through Building Information Modeling. Presented at the Federal Environmental Symposium, Washington DC, USA, 5 June 2007.
  9. Lam, K P, Building Information Modeling. Presented at School of Architecture Xian Jiaotong University, 23 June 2007.
  10. Lam, K P, Research & Development at the Center for Building Performance and Diagnostics, Carnegie Mellon University. Presented at School of Environmental Science and Engineering, Tianjin University, 7 September, 2007.
  11. Lam, K P, Building information modeling for sustainable design: BIM@CMU. Presented at the Shenzhen Institute of Building Research (SiBR), Shenzhen, China, 14 May 2008.
  12. Lam, K P, Critical path to delivering successful intelligent and environmentally responsive buildings. Presented at the Zhejiang University City College, Hangzhou, China, 27 June 2008.
  13. Lam, K P, Knowledge based design of a green knowledge icon. Presented at the Shenzhen Institute of Building Research (SiBR), Shenzhen, China, 2 July 2008.
  14. Lam, K P, Design of Intelligent High Performance Green Buildings, Southwest University of Science and Technology, Mianyang City, Sichuan Province, China, 13 October 2008.
  15. Lam, K P, “The human dimension in product and process modeling of green building design”. Green Building and Energy Efficiency International Conference 2009, Shanghai, China, 18-20 August 2009. (McGraw Hill Construction).
  16. Lam, K P, The art and science of eco-design: lessons from the Suzhou Industrial Park and Tianjin Eco-City, 3rd US-China Green Energy Council Conference 22-23 June 2010, Suzhou, China.
  17. Lam, K P, Aggressively Passive: Employing Passive Systems for Load
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19. Lam, K P, Urban energy information modeling. Urban Land Institute Seminar, Haworth, Beijing, 7 March 2014.
20. Lam, K P and J Zhao, Learning occupant behavior for better energy efficiency. Phipps Conservatory Center for Sustainable Landscape Staff Seminar, 16 Dec 2014.
21. Zhao, J., B Lasternas, R Yun, K P Lam, V Loftness, Occupancy schedule modeling for energy simulation through office appliance power consumption data mining. ASHRAE Winter Conference, 24-28 January, 2015, Chicago, IL.

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BOOKS**

1. Lam, K P, High-rise public housing development in Singapore. In *The Second Century of the Skyscraper*, edited by L S Beedle, pp.443-463. United States: Van Nostrand Reinhold Co., 1988.
2. Lam, K P and J D Harrison, Design for the disabled and the elderly in Singapore. In *Building Design for Handicapped and Aged Persons*, edited by G M Haber, T O Blank, pp.101-122. New York: McGraw-Hill, Inc, 1992.
3. Mahdavi, A and K P Lam, A dialectic of process and tool: knowledge transfer and decision-making strategies in the building delivery process. In *Management of information technology for construction*, edited by Krishan Mathur, Martin Betts, Tham Kwok Wai, pp.345-356. Singapore: World Scientific and Global Publication Services, 1993.
4. Mahdavi, A and K P Lam, Intelligent building enclosures as energy and information mediator. In *Intelligent Environments*, edited by Peter Droege, pp.599-622. The Netherlands: Elsevier Science B.V., 1997.
5. Netto, A M, K P Lam and K K Choy, *Singapore Building Control Handbook*. Singapore: Butterworth/Lexis-Nexis, 2003 Edition, 255 pages. ISBN 9812363114.
6. Akin, O, R Krishnamurti and K P Lam (eds), *Generative CAD Systems. Proceedings of GCAD '04 International Symposium on Generative CAD Systems*. United States: Carnegie Mellon University, 520 pages. 2004. ISBN 0-9762941-0-9.
7. Lam, K P and V Srivastava, *Living in the Intelligent Workplace - Structuring and Managing Building Operation Information*, CAAD Talks 05: Insights of Smart Environments, (Maolin Chui, ed.), Garden City Publishing Ltd. Taipei, Taiwan, 2005, pp. 297-314.
8. Lam, K P, *The Future of CAD:2005 and on - Building Performance Modeling*. In *CAD and GIS Integration*, edited by Hassan A Karim and Burcu Akinci, pp. 17-18, Auerback Publications, Taylor & Francis Group, LLC, 2010.

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9. Lam, K P, The human dimension in product and process modelling for green building design. *Green Design – From Theory to Practice*, edited by Ken Yeang and Arthur Spector, pp. 79-88. Black Dog Publishing Ltd., London, UK, 2011.
  10. Lam, K P, Sustainability Performance Simulation Tools for Building Design. *Sustainable Built Environments – Selected entries from the Encyclopedia of Sustainability Science and Technology*, edited by Vivian Loftness and Dagmar Haase, pp. 526-5945, Springer Science + Business Media, New York, 2013.
  11. Lam K P, J Zhao, RP Zhang, OT Karaguzel. System Integration for Interoperable Data Models of Building Scale Ecosystem, in, *Analytics for Building-Scale Sustainable Ecosystems (BSSE)*. Edited by Yong X. Tao & Yi Jiang. Published by: Begell House, New York, 2013. ISBN: 978-56700-279-9.
  12. Baird N, S Ramesh, H Johnstone, K P Lam. Building Information Modeling: BIM in Current and Future Practice. Chapter 10: Urban Energy Information Modeling: High – Fidelity Aggregated Building Simulation for District Energy Systems. Edited by Karen Kensek. Published by: Wiley, 2014. ISBN: 978 – 1118766309

#### **THESES/DISSERTATIONS**

1. Lam, K P, A Computational Design Support System for Interactive Hygro-Thermal Analysis of Building Enclosures. Doctor of Philosophy thesis, Carnegie Mellon University, Pittsburgh, PA. 1994, 137 pp.
2. Lam, K P, Structural Steelwork and Architecture. B Arch diss, University of Nottingham, Nottingham. 1982, 286 pp.

#### **PUBLISHED REPORTS**

1. Mahdavi, A and K P Lam, A Computer Application for the Consideration of Solar Radiation in Architectural Design Process. Pittsburgh, PA: Center for Building Performance & Diagnostics, Department of Architecture, Carnegie Mellon University, January 1994. 8 pp.
2. Lam, K P, A Mahdavi, M B Ullah, E Y Y Ng and V Pal, Mapping of the Sky Luminance Distribution and Computational Prediction of Daylighting Performance in Singapore. Research Report. Singapore: School of Architecture, National University of Singapore, 1997. 112 pp.
3. Lam, K P, E A Taylor, S C Kong and L Douaze, The establishment of architectural and technical standards and guidelines for the design and maintenance of marine mammal facilities. Research Report. NUS, March 1998. 150 pp.
4. Foo, A F, C K Heng, K S TAY and K P Lam, Development at Dondra, Kandegodella and Gandara in South Sri Lanka. Singapore, August 1999.
5. Wong N H and K P Lam, A study of the use of performance based simulation tools for building design and evaluation in Singapore. Research report, National University of Singapore. Singapore, 1999, 69 pp.
6. Ullah, M B, K P Lam, K W Tham, P.R. Tregenza and K JULIUS, Study of daylight attenuation through windows in urban environments. Research Report,

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National University of Singapore. Singapore, 7 March 2001, 123 pp.

7. Lam, K P, N H Wong, A Mahdavi and K K Chan, SEMPER II: Digital building models for intranet collaborative design computing. Research report, National University of Singapore. Singapore, 1 September 2002, 117 pp.
8. Lam, K P, N H Wong, E Leong and K S Au, Mapping of industry building product model for detailed thermal simulation and analysis. Research report, National University of Singapore. Singapore, 1 September 2002, 27 pp.
9. Lam, K P, N H Wong, S Wittkopf, E Leong, W Solihin, K K Chan and Z J Kang, Integration of CAD and thermal simulation through industry foundation classes (IFC) product model. Research report, National University of Singapore. Singapore, 30 April 2004, 70 pp.
10. Lee, S R, K P Lam, C Q Zhai and Y C Huang, Building simulation models for evaluating the performance of energy recovery technology in packaged rooftop HVAC equipment. Research report submitted to the United Technologies Research Center, Hartford, CT., 13 pages, 18 November 2004 Center for Building Performance and Diagnostics, Carnegie Mellon University, Pittsburgh, PA 15213
11. Lam, K P, Y C Huang and C Q Zhai, Energy modeling tools assessment for early design phase. Research report prepared for Northwest Energy Efficiency Alliance, Portland, OR 97204. 77 pages, 31 Dec. 2004. Center for Building Performance and Diagnostics, Carnegie Mellon University, Pittsburgh, PA 15213.
12. Loftness, V, K P Lam, Y Gu, and M Snyder, Greening the operation and maintenance of the Children's Hospital of Pittsburgh: Benchmarks and opportunities for innovation of material and utility flows. Research report, sponsored by The Heinz Endowments, 76 pages, May 2005. Center for Building Performance and Diagnostics, Carnegie Mellon University, Pittsburgh, PA 15213.
13. Lam, K P, V Loftness, V Hartkopf, B Dong, Y Hua, Y C Huang and C Q Zhai, Integrated concurrent design of high efficiency commercial buildings. Research report (Work Scope #1) prepared for United Technologies Research Center, Hartford, CT 06108, 30 Nov. 2005. Center for Building Performance and Diagnostics, Carnegie Mellon University, Pittsburgh, PA 15213.
14. Lam, K P, S H Kim and P Satwiko, Assessment of Physical and Computational Airflow Analysis and Evaluation Tools for Building Design. Research report prepared for Konstrukt, acting on behalf of Northwest Energy Efficiency Alliance, Portland, OR 97204. 119 pages, 31 Dec. 2005. Center for Building Performance and Diagnostics, Carnegie Mellon University, Pittsburgh, PA 15213.
15. Lam, K P, R Zhang, Y C Huang, C Q Zhai, Impact of Shading Control Strategies on Heating and Cooling Loads of a "Typical" Office Building in Different Climatic Contexts in the USA. Research report prepared for Somfy SAS, France, 37 pages, 4 September 2007. Center for Building Performance

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and Diagnostics, Carnegie Mellon University, Pittsburgh, PA 15213

16. Lam K P, B Dong, R P Zhang, R Zhang. Development of a Web-Based Information Technology Infrastructures and Regulatory Repositories for Green Building Codes in China. Project Report to Energy Foundation, Nov. 2010, Grant No. G-0909-11472. Carnegie Mellon University, Pittsburgh, PA 15213.
17. Lam K P, R P Zhang, H P Wang, B Dong, R Zhang. Development of online Green Building Project Management and Analysis systems. Project Report to Energy Foundation, Feb. 2012, Grant No. G-1103-13851. Carnegie Mellon University, Pittsburgh, PA 15213.

**UNPUBLISHED REPORTS**

1. Tan, M, S E Lee, S Rajendran, K Tharmaratnam, E Y Y Ng, K P Lam, S P Rao, K W Tham, S C Sekhar and K J Teh, Design Performance Evaluation for Jurong Town Corporation 'Model A' Prototype Multi-level Factory Complex. Singapore, 21 January 1997, 112 pp. (Technical Report prepared for Jurong Town Corporation).
2. Lee, S E, K W Tham, K P Lam, M Y L Chew and P Teo, Design and Construction of New Proposed URA Building With Regards to Total Building Performance Specification. Technical Report, Singapore

**BOOK REVIEW**

1. Lam, K P. Review of BAMBUS - BAMBOO (Institute for Lightweight Structure (IL), University of Stuttgart, West Germany), MIMAR, 28 (June 1988): 8384. (Singapore)
2. Lam, K P. Review of Ken Yeang - The Skyscraper Bioclimatically Considered: A Design Primer, Singapore Architect, 196/97 (December 1997): 84-86.

**ARTICLES IN  
NEWSPAPERS AND  
MAGAZINES**

1. Lam, K P, Assessing total building performance, INNOVATION - The Magazine of Research & Technology, National University of Singapore, Vol. 3 No. 2, 2002, pp. 14-15.
2. Huang, Y C, K P Lam and G Dobbs, A scalable lighting simulation tool for integrated building design. IBPSA News, Vol. 18, No. 2, October 2008, pp. 26-33.
3. Harmonizing buildings with nature. Voice of Building Science, Shenzhen Institute of Building Research, China, No. 90, 11/2008, pp. 8-15.

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**TEACHING****CARNEGIE MELLON UNIVERSITY****PH.D. THESES  
ADVISING**

Primary Ph.D. advisor of the following students:

**TABLE 1. Ph.D. Students**

<b>Year</b>	<b>Student</b>	<b>Project</b>
2003-2008	Chaoqin Zhai	Performance Modeling of Desiccant Wheel Design and Operation
2003-2011	Yi Chun Huang	An Integrated Scalable Lighting Simulation Tool
2004-2009	Yun Shang Chiou	An Occupant-Driven Integrative Household System for Residential Building Energy Simulation
2005-2011	Bing Dong	Integrated Building Heating, Cooling and ventilation Control
2006-2012	Rui Zhang	Advanced Building Thermal Simulation Coupling of Finite Volume Method and Nodal System
2008-2013	Omer Karaguzel	Simulation-Based Parametric Analysis of Building Systems Integrative Solar Photovoltaics (SIPV)
2009-2014	Rongpeng Zhang	Dynamic Optimization of Integrated Active-Passive Strategies for Building Enthalpy Control
2010-2015	Jie Zhao	Design-build-operate Energy Information Modeling For Occupant-oriented Predictive Building Control
2012-	Shalini Ramesh	Urban Energy Information Modeling
2012-	Adrian Zhun Min Chong	HVAC Systems Uncertainty Modeling
2012-	Chao Ding	Urban Pollution Modeling
2012-	Weili Xu	Integrating Life cycle Cost Analysis in BIM

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Ph.D. Advisory Committee Member for the following students:

<b>Year</b>	<b>Student</b>	<b>Project</b>
2005-2006	Vipul Sighvi	Machine Learning based Building Control Strategy (Lighting)
2003-2008	Ming Qu	Model-based Design and Operation of Advanced Solar Cooling and Heating System
2011-	Xuesong Liu	Applying A Self-Managing Approach to Improve the Energy Efficiency in Operating and Maintaining HVAC Systems
2009-2014	Erica Cochran	Sustainable Schools and Neighborhoods: Impact of School Building Physical Characteristics and Neighborhood Attributes on Student Performance and Health

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NATIONAL UNIVERSITY OF SINGAPORE

DESIGN THESES  
SUPERVISED

Supervised the following Bachelor of Architecture Year 5 Design Thesis Projects:

**TABLE 2. Bachelor of Architecture Year 5 design thesis projects supervised**

Year	Student	Project
1997/98	Cho Wee Bin, Jeffrey	Project Delphinus
	Leong Mei Mei	Recycling and the Urban Built Environment
	Ong Tso Sheng	Neighbourhood Tele-commuting Centre
	Seow Lee Koon	Experimental Arts Station
	Siah Yeow Kia, Desmond	Re-examining the Neighbourhood Kindergarten-Space for the Child's Imagination
	Wong Kien Meng	MTV Factory
	Yeo Lee Pin	A Primary School for the Year 2000
1996/97	Chan Hwang Ling, Fanny	Day-care Centre for the Elderly
	Kam Leong Heng	Architecture for Information Accessibility - A Library Network
	Loo Chee Choon	Redefining the Community Centre - A Place for the Elderly
	Sian Chong Ping	Bridge-hotel
	Soh Kee Swee, Maureen	Marine Science Interpretive Centre
1995/96	Chum Tun Jang	Senai Regional Airport (Growth Triangle Singapore, Johor and Riau)
	Lee Chiow Hon	Proposed Headquarters for the Singapore Coast Guard
	Lew Kok Wai	Kuala Lumpur Heritage Centre
	Loh Hai Yew	Marine Ecology Research Centre
	Tan Mui Jee, Eleanor	Botanical Centre in the Park
1994/95	Chan Beng Kiat	An Interpretive Centre on Ecology
	Koh Chin Chye	The Information and Auction Centre for the Arts
	Ooi Sean Yin	The City Gate - Ferry Terminal Penang
	Sam Shyan Yee	Infotech Park

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**DISSERTATIONS  
SUPERVISED**

Supervised the following Master of Architecture and Bachelor of Architecture dissertations:

**TABLE 3. Master of Architecture dissertations supervised**

Year	Author	M. Arch. Dissertation Title
2001/02	Low Soon Meng	Being comfortable in flats - Use of CFD in the analysis of comfort in flats
2001/02	Tham Ban Fatt	Impact of computer technology on architectural representation
2000/01	Foo Wan Ching	Assessment and prediction of daylight efficiency in side-lit space in Singapore.
2000/01	Lim Tian Ping	Morphology of skyscrapers - Balanced environment of the interior and exterior - A concept of total building
2000/01	Low Lee Onn, Mark	Thermal comfort in office spaces - Investigation into the parameters of design for thermal comfort in office spaces

**TABLE 4. Bachelor of Architecture dissertations supervised**

Year	Author	B. Arch. Dissertation Title
1998/99	Low Sok Hwee	Spatial determinism of social interaction patterns in public housing blocks design.
1998/99	Tse Pek Mun	Empirical study: Design intentions and experiential reality in Atria.
1997/98	Leong Mei Mei	(Media) Representation of place: An extensions and limitations of place in private condominiums in Singapore.
1997/98	Lim Chiong Lew Bernice	Commodification and consumption of the past in the built heritage and heritage tourism.
1997/98	Ong Tso Sheng	An alternative to the office tower.
1996/97	Chua Ter Yui Dawn	Evolution of the building envelope: its impact on the environment and on the quality of the interiors.
1996/97	Fatimah Akhtar	Inquiry into the role of specifications for total building performance.
1996/97	Kam Leong Heng	Architecture for the pre-school children.
1996/97	Lee Sze Kai	River cities and their relationship to the rivers - a comparative study of Singapore and Perth.
1996/97	Liam Wai Tak	Changing office physical environment in response to the impact of office automation.
1996/97	Sim Choon Heok	Photo-graphically speaking on architecture and its represented image.



1996/97	Soh Ken Swee Maureen	Role of the structural frame in the architecture of the Barcelona Pavilion & Villa Savoye.
1996/97	Yeo Kwang Teck	Technology, the green issue and architecture.
1995/96	Chia Teck Giap	Nature: The lifeblood of a sustainable built environment.
1995/96	Lee Chiow Hon	Architecture and the art of war.
1995/96	Loh Hai Yew	Seaquest: Concept of sea-based development as an alternative to land-based development.
1995/96	Lee Kok Wai	Kuala Lumpur: a study of a post colonial city.
1995/96	Lim Li Kiang	Image of technology in Nicholas Grimshaw's British Pavilion Expo 1992.

**TABLE 5. Bachelor of Science (Building) dissertations supervised**

Year	Candidate	B. Sc. Dissertation Title
2002/03	Koh Yaik Meng	The value of architectural design competitions in Singapore
2002/03	Lee Sze Yong	Foreign workers and main-year entitlement
2002/03	Lee Tse Choon, Paul	Effect of HDB upgrading on its occupants
2002/03	Leong Chan Tong	Performance-based codes for fire safety in Singapore
2002/03	Tan Shin Hui, Denise	Urban heat island - a comparison of ambient temperatures

## THESES EXAMINED

Examined the following graduate research theses:

**TABLE 6. Master of Science (Building Science) theses examined**

Year	Candidate	Master Thesis Title
1998	Lim Kok Hee	Lighting conditions and lighting power budget of offices in Singapore
2001	Liaw Wee Lin	Daylight distribution in Housing and Development Board residential blocks

**TABLE 7. Master of Arts (Architecture) theses examined**

Year	Candidate	Master Thesis Title
2007	Soon Lay Kuan	Daylighting of Atria in Singapore

**TABLE 8. PhD theses examined**

Year	Candidate	PhD Thesis Title
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2014 (TU Wien)	Sokol Dervishi	Habilitation Commission- Architectural Lighting: Boundary Conditions and Computational Applications.
2006 (UC Cork)	Monjur Mourshed	Interoperability-based Optimization of Architectural Design
2001 (TU Delft)	Bay Joo Hwa, Philip	Cognitive biases in design: the case of tropical architecture
1999 (NUS)	Ling Yean Yng, Florence	Multi-attribute decision making model for evaluation and selection of consultants for Design-and-Build projects in Singapore
1999 (NUS)	Tan Chin Chong	Solar induced ventilation
1999 (NUS)	Zhong Qi	Building process modelling using product modelling methodology and its application to scheduling

## COURSES TAUGHT

### CARNEGIE MELLON UNIVERSITY

Fall 2015	48722 Building Performance Modeling 48116 Building Physics
Fall 2014	48722 Building Performance Modeling 48116 Building Physics
Spring 2015	48721 Building Controls and Diagnostics 48744 Computational Fluid Dynamics in Building Design
Fall 2013	48722 Building Performance Modeling 48116 Building Physics
Spring 2014	48721 Building Controls and Diagnostics
Fall 2012	48722 Building Performance Modeling 48116 Building Physics
Spring 2013	48721 Building Controls and Diagnostics
Fall 2011	48722 Building Performance Modeling 48116 Building Physics
Spring 2012	48721 Building Controls and Diagnostics
Fall 2010	48722 Building Performance Modeling 48410 Environment II-Lighting 48413 Building Acoustics
Spring 2011	48410 Environment II-Lighting 48116 Building Physics 48599 Undergraduate Independent Study
Fall 2009	48722 Building Performance Modeling 48410 Environment II-Lighting 48413 Building Acoustics
Spring 2010	48405 Architecture Design Studio: Systems Integration

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Fall 2008	48722 Building Performance Modeling
Spring 2009	48413 Building Acoustics 48721 Building Controls and Diagnostics 48405 Architecture Design Studio: Systems Integration
Fall 2007	48722 Building Performance Modeling
Spring 2008	48410 Acoustics and Lighting 48721 Building Controls and Diagnostics 48405 Architecture Design Studio: Systems Integration
Fall 2006	48722 Building Performance Modeling 48410 Acoustics and Lighting
Spring 2007	48721 Building Controls and Diagnostics
Summer 2007	48505 Summer Study Abroad – Design Studio in Hong Kong, China
Fall 2005	48722 Building Performance Modeling 48410 Acoustics and Lighting
Spring 2006	48721 Building Controls and Diagnostics
Summer 2006	48505 Summer Study Abroad – Design Studio in Hong Kong, China
Fall 2004	48722 Building Performance Modeling 48410 Acoustics and Lighting
Spring 2005	48721 Building Controls and Diagnostics 48405 Architectural Design Studio (Gates Center, Carnegie Mellon University)
Fall 2003	48722 Building Performance Modeling
Spring 2004	48721 Building Controls and Diagnostics 48405 Architectural Design Studio – Labs 21 Design Competition (Georgetown University, Washington DC.)

**NATIONAL UNIVERSITY OF SINGAPORE**

2002/2003	BS5203 Computational Design Support Tools BS5216 Lighting Design and Technology BU4102 Integrated Construction Technology AR3102 Architectural Design (studio consultation) AR6102 Architectural Design Thesis (studio consultation)
2001/2002	AR6141 M. Arch. Dissertation BS5203A Computational Design Support Tools
2000/2001	AR6141 M. Arch. Dissertation BS5216 Lighting Design and Technology BS5203A Computational Design Support Tools
1999/2000	AR5318 Intelligent Buildings AR4203 Research Methodology AR5513 Computational Design Support Tools
1998/99	AR4203 Research Methodology MBS206 Lighting and Technology

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1997/98	AR501 Architecture and Urban Design 2 AR503 Dissertation AR4203 Research Methodology
1996/97	AR501 Architecture and Urban Design 2 AR503 Dissertation MBS206 Lighting and Technology
1995/96	AR401 Architecture and Urban Design 1 AR501 Architecture and Urban Design 2 AR402 Building Technology AR503 Dissertation AR305 Building Construction
1994/95	AR401 Architecture and Urban Design 1 AR501 Architecture and Urban Design 2 AR402 Building Technology
1988/89	AR105 Building Structures 1 AR305 Building Structures 3 AR304 Building Construction 3 AR201 Architecture Design 2
1987/88	AR105 Building Structures 1 AR305 Building Structures 3 AR304 Building Construction 3 AR301 Architecture Design 3
1986/87	AR105 Building Structures 1 AR304 Building Construction 3 AR301 Architecture Design 3
1985/86	AR105 Building Structures 1 AR304 Building Construction 3 AR201 Architecture Design 2
1984/85	AR105 Building Structures 1

## **CONSULTANCY SERVICES**

### **NBBJ, New York, NY 10006**

Jiahui International Hospital, Shanghai, China (Oct 2013 – Oct 2014).

### **Syska Hennessy Group, New York 10036**

Jiahui International Hospital, Shanghai, China (Apr – Oct 2014).

### **Tiong Seng Properties Pte. Ltd., Singapore**

Tianjin Eco-City Residential Development (Sep 2009 - Jul 2010)

### **NBBJ, Columbus, OH 43204**

Koo Foundation Dr. Sun Yat-Sun Cancer Center, Taipei, Taiwan (Jan - Dec 2009)

### **Phipps Conservatory, Pittsburgh, PA 15213**

Review of building performance modeling of the Center for Sustainable Landscape (CSL) project. (September 2007)

### **Imbue Technology Solutions Inc., Pittsburgh, PA 15108**

Building Energy Modeling of McDonald's Restaurant, Kennywood, Pittsburgh, PA. (July - August 2005).

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**Corning Inc., Corning, NY.**

Design charrette team - W C Decker Engineering Building, Corning, NY. (July 2005)

**National Library Board, Singapore**

Won the international design competition with T R Hamzah & Yeang/Swan and Maclaren Architects team to design and building the new National Library Board (NLB) Building. (May 1999 - January 2000).

Appointed Consultant by the National Library Board on Total Building Performance evaluation of the design of the NLB Building as well as Coordinator of the technical evaluation team comprising 5 other consultant firms appointed by NLB in the tender evaluation process. (February 2000 -July 2003).

**Singapore Cricket Club**

Assessment of Proposed Remedial Works to the Premises of the Singapore Cricket Club. February 2001

**Pidemco Land Ltd., Singapore**

A Total Building Performance Study of the CAPITAL TOWER (POSBank Tower). November 1998 - May 1999

**Allegro Investments Pte Ltd, Singapore**

Investigation of Moisture and Mildew Problems at a Private Condominium Development. 18 September - 18 October 1998

**C&S Construction Pte Ltd, Singapore**

Consultant on External Floor Finishes for Pierce Villa Project. 24 June - 21 July 1997

**May Oh and Wee Advocates and Solicitors, Singapore**

Consultant and Expert Witness on DC Suit - Water Leakage Through Skylights at a Private Residential Property. 14 January - 7 February 1997

**Cathay Organisation Pte Ltd., Singapore**

Collaborator on the "Cathay Building Redevelopment" Project. 24 May - 24 October 1996

**Jurong Town Corporation, Singapore**

Consultant on the "Design Evaluation of the 'Model A' Prototype Multi-level Factory Complex". 9 September 1996 - 15 January 1997

**Urban Redevelopment Authority, Singapore**

Consultant on the proposed URA Headquarters Building Project: a) Specification of the concept of Total Building Performance in the Design & Build tender documentation. 15 August - 30 September 1995. b) Tender evaluation, with specific reference to the implementation of Total Building. 18 January - 30 April 1996

**RSP Architects Planners and Engineers, Singapore**

Preparation of Technical Manual on Good Architectural Detailing Practice. 1 March - 30 April 1989.

Analysis of the Performance of Existing Architectural Details in the Office and preparation of a Technical Manual of Good Detailing Practice. 15 June - 30 June October 1988

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