

FINAL PROGRAM



TSINGHUA UNIVERSITY • BEIJING, CHINA

Hosted By:



ENERGY SYSTEMS LABORATORY
TEXAS A&M ENGINEERING EXPERIMENT STATION

ICEBO.TAMU.EDU

Conference Schedule

Sun. September 14	On-Site Registration, Lobby of Bldg. Energy Research Center (BERC)	12:00 pm - 5:00 pm
Mon. September 15	On-Site Registration, Tsinghua University Central Main Bldg. Lobby	7:00 am - 8:00 am
	Attendees Light Breakfast Refreshments, Tsinghua University Central Main Bldg. 2nd Floor Lobby	7:00 am - 7:50 am
	Session Chair & Authors Light Breakfast Refreshments, Tsinghua University Central Main Bldg. 2nd Floor Room 327	7:00 am - 7:50 am
	Opening & Plenary, Tsinghua University Central Main Bldg. Lecture Room (1st Floor)	8:00 am - 9:15 am
	Refreshments & Networking Break Lobby BERC Building	9:15 am - 9:45 am
	Technical Sessions 1-2, Bldg. Energy Research Center (BERC)	9:50 am - 11:55 am
	Luncheon & Plenary, Tsinghua University Architecture Building Multifunctional Room (2nd Floor)	12:00 pm - 1:25 pm
	Technical Sessions 3-6, BERC Building	1:30 pm - 5:55 pm
	Welcoming Reception, Jiasuo Restaurant	6:00 pm - 7:30 pm
Tues. September 16	Technical Sessions 7-10, BERC Building	8:00 am - 11:55 pm
	Refreshments & Networking Break Lobby BERC Building	9:40 am - 10:10 am
	Luncheon & Keynote Speaker, Tsinghua University Architecture Building Multifunctional Room (2nd Floor)	12:00 pm - 1:20 pm
	Technical Sessions 11-14, BERC Building	1:25 pm - 5:00 pm
	Refreshments & Networking Break	3:05 pm - 3:30 pm
	Closing & Wrap Up, BERC 1st Floor Lecture Room	5:00 pm - 5:30 pm
Wed. September 17	Roundtable Panel Discussions, BERC 1st Floor Lecture Room	8:30 am - 12:00 pm
	Concluding Remarks	12:00 pm
	Exclusive Offsite Building Tour	1:30 pm - 4:00 pm



Introduction

The International Conference for Enhanced Building Operations [ICEBO] is a well-established global forum providing technology transfer, best practices, education and excellent networking opportunities for those who use the latest innovative solutions to enhance operations and maximize the efficiency and productivity of their buildings. Endorsed by ASHRAE, real estate industry leaders from commercial and government facilities benefit from the knowledge shared at ICEBO. Owners, operators, building service providers, energy experts, existing building commissioning providers, engineers, architects, utilities and government program managers gather here to learn what is new in the industry, the role of enhanced building operations in the energy economy, and the technical, training and political issues facing owner-operators. ICEBO also brings the latest research, products and building service providers to the forefront of intelligent building operations

Hosts

Building Energy Research Center, Tsinghua University

Energy Systems Laboratory, Texas A&M University

Swire Properties Ltd., Hong Kong

Sponsors

Building Services Commissioning Association of Japan

China SECOM

School of Architecture, Tsinghua University

Swire Properties Ltd., Hong Kong

Texas A&M Engineering Experiment Station, Texas A&M University

Tsinghua Tongfang Digital City Group

Endorsed by

AEE, The Association of Energy Engineers

ASHRAE, American Society of Heating, Refrigerating and Air-Conditioning Engineers

BSRIA Ltd., Building Services Research and Information Association

CABA, Continental Automated Buildings Association

China-US Clean Energy Center

China Association of Refrigeration

LonMark International

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ICEBO Conference Sessions

Day One - Monday Morning, September 15

- 7:00 am - 8:00 am Registration - Central Main Bldg. Lobby
- 7:00 am - 7:50 am Conference Attendee Breakfast Refreshments - Central Main Bldg. -2nd Floor Lobby
- 7:00 am - 7:50 am Conference Session Chairs and Presenters Light Breakfast Refreshments – *Central Main Bldg.- 2nd Floor Room 327*
- 8:00 am - 9:15 am Welcome, Introductions & Keynote Address - Central Main Bldg. - Lecture Room 1st Floor
Welcome to ICEBO 2014 and BERC
- Dr. Qingpeng Wei, Co-Chair and Host ICEBO 2014; Associate Professor, Department of Building Science, School of Architecture at Tsinghua University
 - Dr. David Claridge, P.E.; Director of Energy Systems Laboratory and Professor at Texas A&M University
 - Professor Yi Jiang, Fellow of China Academy of Engineering, Director of Building Energy Research Center of Tsinghua University, Co-director of China – US Clean Energy Center on Buildings
- Opening Keynote Address**
- Mr. Liang Junqiang, Deputy Director of Science and Technology Promotion Center of MOHURD, Co-director of China – US Clean Energy Center on Buildings
- Closing Remarks**
- Malcolm Verdict, C.E.M.; Co-Chair ICEBO 2014 and Associate Director, Energy Systems Laboratory at Texas A&M University
- 9:15 am – 9:45 am Refreshment Break & Networking - Lobby BERC Building
- 9:50 am – 11:55 am Sessions 1 – 2**

[Session 1] Building Simulation, Controls & Optimization Strategies Part I - BERC 1st Floor Lecture Room

Session Chair: Associate Prof. Fulin Wang, Tsinghua University, China

- Building automation system embedded air-handling unit performance degradation detector: Li Song and Gang Wang; University of Oklahoma, USA
- Dealing with big circulation flow, small temperature difference based on verified dynamic model simulations of a hot water district heating system: Li Lian Zhong; Danfoss, China
- Retro-commissioning on heating system of an indoor swimming pool to improve daily operation efficiency: Xuedong Tian, Hui Zhang and Dr. Qingpeng Wei; Tsinghua University, China
- A systematic approach to energy efficiency retrofit solutions for existing office buildings: Yunming Shao; TU MÜNchen, Germany

[Session 2] Overview of Building Cx in China - an Emerging Market - BERC 3rd Floor Meeting Room

Session Chair: Associate Prof. Qingpeng Wei, Tsinghua University, China

- Overview of the Commissioning Project in the US-China Clean Energy Research Center, Building Energy Efficiency Consortium: Xiufeng Pang, Bin Hao, Richard Diamond, Nan Zhou, Brian S. Heimberg; Lawrence Berkeley National Laboratory, USA
- Commissioning in Buildings and Systems in China for Energy Efficiency: Dr. Qingpeng Wei, Associate Professor; Tsinghua University, China
- Evolution of Smart Buildings and their place in the Internet of Everything: Jeremy Towler; BSIRA, United Kingdom
- How to achieve the real Building Energy Savings: Bin Hao, Division Head; Center of Science and Technology of Construction, Ministry of Housing and Urban-Rural Development of the People's Republic of China

Day One - Monday Afternoon, September 15

- 12:00 pm – 1:25 pm Luncheon & Keynote Speaker - Architecture Building Multifunctional Room (2nd Floor)
- Welcome by APCBC/BSCA, Professor Harunori Yoshida, Kyoto University, Japan
 - The Chinese Energy Efficiency Market – Definitions – Dimensions – Drivers: Martin Li, Senior Consultant, Deputy General Manager, BSRIA China

1:30 pm – 5:55 pm Sessions 3 – 6

3:30 pm – 3:55 pm Refreshment Break & Networking- Lobby BERC Building

[Session 3] Building Simulation, Controls & Optimization Strategies II - BERC 1st Floor Lecture Room

Session Chair: Prof. Harunori Yoshida, Kyoto University, Japan

- Solar and daylight availability evaluation and estimation in urban fabric under specific sky conditions: Nouredine Zemmouri; University of Biskra, Algeria
- On-site measured performance of a radiant floor cooling & heating system in Xi'an Xianyang International Airport (China): Kang Zhao, Xiaohua Liu, Yi Jiang; Tsinghua University, China
- DFW international airport & Alamo colleges continuous commissioning© programs and results: Bahman L. Yazdani: Energy Systems Laboratory - Texas A&M University, USA
- Research of energy consumption model and KPI system for evaluating operational energy performance for airport terminal: Cai He, Qingpeng Wei, Tao Wang, Runguang Wang; Tsinghua University; Beijing Capital Airport Power & Energy Co., Ltd., China

[Session 4] Building Simulation, Controls & Optimization Strategies III - BERC 1st Floor Lecture Room

Session Chair: Jorma Pietiläinen, VTT Technical Research Centre of Finland

- Commissioning Process and Operational Improvement in the District Heating and Cooling - APCBC: Tomoaki Takase, Osamu Takada, Kiyoshi Shima, Mitsuru Moriya, Yoshiyuki Shimoda; Mitsubishi Jisho Sekkei, Ltd., Japan
- Model Based Commissioning Tool for Air-Conditioning Distribution Systems - APCBC: Harunori Yoshida, Takashi Noda; Okayama Science University, Japan
- Improving Chiller Plant Operational Efficiency through Continuously Commissioning: Evaluation Index System and Case Study: Ruosa Wu, Cheng Chang and Dr. Qingpeng Wei; Tsinghua University, China
- Monitoring and Commissioning for Green Campuses: Jorma Pietiläinen, VTT Technical Research Centre of Finland

[Session 5] Best Practices for Metering, Indexing & Data Analysis - High Performance Buildings - BERC 3rd Floor Meeting Room

Session Chair: Prof. David Claridge, Texas A&M University, USA

- Index to Evaluate Energy Efficiency of the Building HVAC System: Linyan Wang, Lei Wang, David Claridge (Presenter); Energy Systems Laboratory - Texas A&M University, USA
- The measure for the effective environmental load reduction on a university campus - APCBC: Yasunori Akashi, Yasuhide Okamoto; Tokyo University, Japan
- Integrated NOx Emissions Reductions from Energy Efficiency and Renewable Energy (EE/RE) Programs across State Agencies in Texas: Juan-Carlos Baltazar, Jeff Haberl, Bahman Yazdani, Texas A&M University, USA

[Session 6] Commissioning & Auditing Existing Buildings for Enhanced Performance - BERC 3rd Floor Meeting Room

Session Chair: Prof. Y. Akashi, University of Tokyo, Japan

- Case study of Chilled Water Loop Low Delta-T Fault Diagnosis: Lei Wang, Ph.D., P.E., Ken Meline, P.E., James Watt, P.E; Energy Systems Laboratory - Texas A&M University, USA

- Implemented Continuous Commissioning® Measures for Schools, Hospitals, and Office Buildings in the U.S.: Sukjoon Oh and David Claridge (Presenter); Energy Systems Laboratory - Texas A&M University, USA
- Re-Commissioning on a Commercial Complex in Cold Climate for Better Indoor Environment and Energy Savings in winter with On-site Measurement and Simulation: He Cai, Tsinghua University, China

6:00 pm – 7:30 pm Welcoming Reception - Jiasuo Restaurant

Day Two - Tuesday Morning, September 16

8:00 am – 11:55 pm Sessions 7 – 10

9:40 am - 10:10 am Refreshment Break & Networking- Lobby BERC Building

[Session 7] Advanced Technologies for High Performance Buildings I - BERC 1st Floor Lecture Room

Session Chair: Prof. H. Tanaka, Nagoya University, Japan

- Research and Application of Radiant Ceiling and Fresh Air (RCF) Technology in Public Building: Jiguang Yan and Danna Pan; AirStar Air-Conditioning Technology Group Ltd. Hong Kong
- The Exploration on the Energy Saving Potential of an Innovative Dual-temperature Air Conditioner and the Theoretical Mixed Refrigeration Cycle: Lei Zhao, Xijin Zhao, Andu Hu; Xi'an University of Architecture and Technology, China
- Optimized Sequence of Operation for a Thermal Energy Storage System Before and After the Implementation of Continuous Commissioning® at Alamo Colleges, San Antonio, TX. USA: Norma L. Rangel, Yifu Shi, John W. Strybos, Joseph T. Martinez and Malcolm Verdict (Presenter); Energy Systems Laboratory - Texas A&M University, USA

[Session 8] Advanced Technologies for High Performance Buildings II - BERC 1st Floor Lecture Room

Session Chair: Malcolm Verdict, Texas A&M University, USA

- Modeling to predict positive pressurization required to control mold growth from infiltration in a building in College Station, Texas: David E. Claridge, PhD, PE, Wei-Jen Chen; Energy Systems Laboratory - Texas A&M University, USA
- Optimal design of ground source heat pump system integrated with phase change cooling storage tank in an office building: Na Zhu; Huazhong University of Science and Technology, China
- Development of a detailed simulation model to support evaluation of water load shifting across a range of use patterns: Aizaz Samuel and Paul Tuohy; University of Strathclyde, United Kingdom

[Session 9] BAS Automation Systems Advanced Techniques - BERC 3rd Floor Meeting Room

Session Chair: Dr. Jean Qin, Swire Properties, Ltd., Hong Kong

- Detecting and tracing building occupants to optimize process control: Wim Zeiler, Timilehin Labeodan, Gert Boxem; TU Eindhoven, Netherlands
- Building Automation and Controls Systems: Integrated Room Control for Personalized Comfort and Increased ROI: David Gill, VP Asia; Distech Controls Inc., Canada
- Measures of ensuring energy efficient operation of buildings with automation systems: Fulin Wang, Zheliang Chen, Peizhang Chen; Tsinghua University, China
- Development of a Portable Wireless Sensor Network to enhance Post-Occupancy Commissioning: Sarah Noye, Dr. Robin North; Prof. David Fisk; Imperial College London, United Kingdom

[Session 10] Advanced Building & SMART Grid Simulation Techniques - BERC 3rd Floor Meeting Room

Session Chair: Prof. D. Sumiyoshi, Kyushu University, Japan

- Methodologies for Estimating Building Energy Savings Uncertainty: Review and Comparison: Juan Carlos Baltazar, Ph.D., P.E., Yifu Sun, and David E. Claridge, Ph.D., P.E.; Energy System Laboratory - Texas A&M University, USA

- Comfort demand leading the optimization of energy supply from the Smart Grid: Kennedy Aduba, Wim Zeiler, Gert Boxem; TU Eindhoven, Netherlands

Day Two - Tuesday Afternoon, September 16

- 12:00 pm – 1:20 pm Luncheon & Keynote Speaker - Architectural Building Multifunctional Room (2nd Floor)
- Mr. Cary Chan, General Manager of TSSD, Swire Properties Ltd., Hong Kong
Towards Zero Carbon Building - Bridging the Performance Gap

1:25 pm – 5:00 pm Sessions 11 – 14

3:05 pm – 3:30 pm Refreshment Break & Networking- Lobby BERC Building

[Session 11] Advanced Techniques for Validating Building Performance I - BERC 1st Floor Lecture Room

Session Chair: Prof. M. Yamaha, Chubu University, Japan

- A new route for energy efficiency diagnosis and potential analysis of energy consumption from air-conditioning system: Rong-Jiang Ma, Nan-Yang Yu; Southwest Jiaotong University, China
- Balancing Energy Efficiency and Cost-effectiveness Operation for Chiller Plant with Thermal Storage: Ruosa Wu, Dr. Qingpeng Wei; Tsinghua University, China
- Continuous Commissioning Performance of Panasonic Tokyo-Shiodome Building - APCBC: Jeffrey Zhang, Iwao Hasegawa; Nikken Sekkei Ltd., Japan
- Performance Evaluation of the Automatic Optimization and Degradation Detection Tool for Chiller Plants - APCBC: Daisuke Sumiyoshi; Kyusyu University, Japan

[Session 12] Advanced Techniques for Validating Building Performance II - BERC 1st Floor Lecture Room

Session Chair: Associate Prof. Baolong Wang, TSU China

- Commissioning test for existing large scale building using simulation modeling - APCBC: Yoshibumi Sugihara, Yasuharu Hondo, Hideki Yuzawa; Nikken Sekkei Ltd., Japan
- Experimental Study in Energy Performance of Temperature and Humidity Independent Control System with Multiple Split Air-Conditioning System: Masashi Kawano; Nikken Sekkei Ltd., Japan
- Evaluating Operation Efficiency of Various Types of Heat Pump for Space Heating of Residential Buildings in Cold Climate: Wu Zhongjun, Tsinghua University, China

[Session 13] Building System Simulation for Optimization & Commissioning - BERC 3rd Floor Meeting Room

Session Chair: Bahman Yazdani, Energy Systems Laboratory, USA

- Part 1 Diagnosis of Effectiveness of HVAC System and Energy Performance of Osaka-Gas Building through Retro-Commissioning: Outline of HVAC Systems and Diagnosis of Energy Efficiency of Air Systems: Toshihomi Hatanaka, Ko-ichiro Aoki, Norio Matsuda, Motoi Yamaha, Hideki Tanaka and Nobuo Nakahara; Chubu University, Japan
- Part 2 Diagnosis of Effectiveness of HVAC System and Energy Performance of Osaka Gas Building through Retro-Commissioning; Handling the Data Produced by BEMS and Some Results of Analyses: Motori Yamaha and Takuma Ando; Chubu University, Japan
- Part 3 Performance Evaluation of the Automatic Optimization and Degradation Detection Tool for Chiller Plants: Hideki Tanaka, Motoi Yamaha, Toshiomi Hatanaka, Ko-ichiro Aoki, Norio Matsuda, and Nobuo Nakahara; Chubu University, Japan
- A Case Study of a Commissioning Process for Demand Side Energy Conservation of the Large Heat Source Plant in Kyoto Station Building - APCBC: Naomiki Matsushita, Harunori Yoshida; Aleph Networks Co., Japan
- Lifecycle Energy Management in the Tohoku Electric Power headquarters building - APCBC: Hideki Yuzawa, Senior Researcher; Nikken Sekkei Ltd., Japan

[Session 14] Unique & Innovative Approaches for HVAC System Optimization - BERC 3rd Floor Meeting Room

Session Chair: James Watt, P.E., Green Star Engineering, USA

- Application of Expert Systems to Industrial Utility Equipment Optimization: Sean Hayes, Ken Burton, Dominic O'Sullivan; University College Cork, Ireland
- VRF on-site Measurement by Compressor Curve Method of VRF and the applications - APCBC: Yurino Kan, Sumio Shiochi; Daikin Industries Ltd., Japan
- Study on Performance Verification and Evaluation of District Heating and Cooling System Using Thermal Energy of River Water: Naoki Takahashi, Hideharu Niwa, Masashi Kawano, Kazusa Koike, Osamu Koga, Kyohei Ichitani, Noriaki Mishima; Nikken Sekkei Ltd., Japan

Closing & ICEBO Wrap Up 5:00 pm - 5:30 pm - BERC 1st Floor Lecture Room

Day Three - Wednesday, September 17

8:30 am - 12:00 pm Roundtable Panel Discussions - BERC 1st Floor Lecture Room

8:30 am - 10:00 am Panel A: *Benefits of Enhanced Operations for Investor-owned Commercial Complexes - an Owner/Investor Perspective*

Chaired by Dr. Qingpeng Wei, Tsinghua University; Mr. Tom Dressen, EPS Capital, Beijing and Mr. Cary Chan and Dr. Jean Qin, Swire Properties Ltd., Hong Kong

10:00 am - 10:30 am

Networking Break- BERC 1st Floor Lecture Room

10:30 am - 12:00 pm

Panel B: *Opportunities and Benefits from a Pan-Pacific Alliance on Cx to Enhance Operational Performance in the future*

Discussion Leaders: Dr. David Claridge, Texas A&M University; Dr. Qingpeng Wei, Tsinghua University; Dr. Harunori Yoshida, Kyoto University; Mr. Cary Chan and Dr. Jean Qin, Swire Properties Ltd., Hong Kong

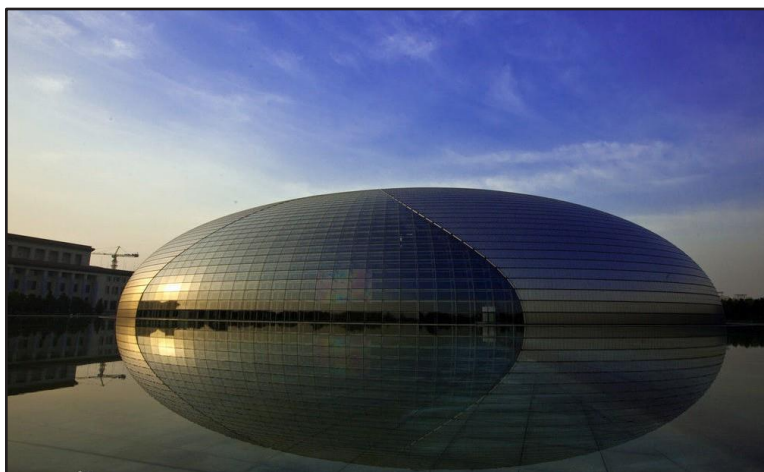
12:00 pm

Concluding Remarks

Wednesday Afternoon, September 17

1:30 pm - 4:00 pm Exclusive Offsite Building Tour

Behind the scenes tour of the China National Center for the Performing Arts Building. It is located on the west side of Tiananmen Square, was designed by French architect Paul Andreu and completed in 2007. The building occupies a site area of 118,900 m², with a floor area of 165,000 m², height 46 m, length 212.3 m, width 143.6m, and investment cost of 2.7 giga-yuan RMB. This magnificent building is designed in the shape of semi-ellipsoid and surrounded by an artificial lake, which makes the main entrance under-water. <http://www.chncpa.org/ens/>



A fee will be collected on-site for transportation and admission.