

RICHARD K. STRAND

Educational Background

Rensselaer Polytechnic Institute, Bachelor of Science in Mechanical Engineering, August 1989
 University of Illinois at Urbana-Champaign, Master of Science in Mechanical Engineering, October 1992
 University of Illinois at Urbana-Champaign, Doctor of Philosophy in Mechanical Engineering, May 1995

Professional Employment History

Graduate Research Assistant, BLAST Support Office, Department of Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign, August 1989-May 1995
 Private Consultant, Champaign, Illinois, August 1994-December 1998
 Research Engineer/Research Associate, Building Systems Laboratory, Department of Mechanical and Industrial Engineering, University of Illinois at Urbana-Champaign, May 1995-August 1999
 Assistant Professor, School of Architecture, University of Illinois at Urbana-Champaign, August 1999-August 2005
 Associate Professor, School of Architecture, University of Illinois at Urbana-Champaign, August 2005-present

Research Grants

Researcher(s)	Funding Agency	Project Title	Dates	Funding
R.K. Strand (PI)	US Department of Energy through the US Army Construction Engineering Research Laboratory	Provide Research and Support for Developing Portions of the Beta Version – Version 1.1 of EnergyPlus	9/99 – 12/02	\$210,117
R.K. Strand K.T. Baumgartner (co-PIs)	US Department of Energy National Energy Technology Laboratory through Oklahoma State University	Integration of Low Energy Technologies for Optimal Building and Space Condition Design	9/01 – 11/04	\$135,587
R.K. Strand (PI)	US Department of Energy through the National Renewable Energy Laboratory	Development of Training Materials, Curricula, Workshops, and Courses for EnergyPlus	11/02 – 8/03	\$34,995
R.K. Strand (PI)	US Department of Energy through the Lawrence Berkeley National Laboratory	EnergyPlus Research, Development, and Support	1/04 – 12/06	\$186,178
R.K. Strand (PI)	US Department of Energy through the Florida Solar Energy Center (FSEC)	EnergyPlus Research, Development, and Support	03/06 – 06/11	\$504,999
R.K. Strand (PI)	US Department of Energy through the Florida Solar Energy Center (FSEC)	Continuity and Innovation in the Development and Support of EnergyPlus	06/11 – 10/14	\$298,758
R.K. Strand (PI)	US Department of Energy through the National Renewable Energy Laboratory (NREL)	EnergyPlus Whole-Building Modeling and Simulation Software Development	10/15 – 9/20	\$168,990

Selected Publications

- Chae, Y.T. and R.K. Strand. 2010. "Development of a dedicated outdoor air system (DOAS) module for a whole building annual energy simulation program", Conference Proceedings of SimBuild 2010, Proceedings of the Fourth National Conference of the International Building Performance Simulation Association—USA Affiliate (IBPSA-USA), 10 pages.
- Kang, D. and R.K. Strand. 2010. "Implementation of a model for a wind turbine system in EnergyPlus", Conference proceedings of SimBuild 2010, Proceedings of the Fourth National Conference of the International Building Performance Simulation Association—USA Affiliate (IBPSA-USA), 8 pages.
- Kang, D. and R.K. Strand. 2010. "A new model for calculating the convective and radiant impact of radiators and baseboards in EnergyPlus", Conference Proceedings of SimBuild 2010, Proceedings of the Fourth National Conference of the International Building Performance Simulation Association—USA Affiliate (IBPSA-USA), 7 pages.
- Chae, Y.T. and R.K. Strand. 2012. "Modeling ventilated slab systems using a hollow core slab: implementation in a whole building energy simulation program", (paper being reorganized into two separate papers and resubmitted as requested by reviewers, 27 pages).
- Kang, D. and R.K. Strand. 2013. "Modeling of simultaneous heat and mass transfer within passive down-draft evaporative cooling (PDEC) towers with spray in FLUENT", *Energy and Building*, Vol. 62, pp. 196-209.
- Chae, Y.T. and R.K. Strand. 2014. "Thermal performance evaluation of hybrid heat source radiant system using a concentrate (concentric) tube heat exchanger", *Energy and Building*, Vol. 70, pp. 246-257.
- Kim, H.S. and R.K. Strand. 2015. "Advances in the operating condition design analysis of air based PV/T solar roof systems", Conference Poster, SOLAR 2015, American Solar Energy Society, Penn State University, July 28-30, 2015.
- Kang, D. and R.K. Strand. 2015. "Implementation of analytical models for passive down-draft evaporative cooling (PDEC) tower with spray systems." 14th Conference of International Building Performance Simulation Association, Hyderabad, India, Dec. 7-9, 2015.
- Daeho Kang and Richard K. Strand. 2016. "Significance of parameters affecting the performance of a passive down-draft evaporative cooling (PDEC) tower with a spray system." *Applied Energy*, Vol. 178, pp. 269-280.
- Kang, D. and R.K. Strand. 2017. "A simulation study on the effects of a spray PDEC tower system in the cooling of buildings." 15th Conference of the International Building Performance Simulation Association, San Francisco, August 7-9, 2017.
- Amirzadeh, A., R.K. Strand, R. Hammann, and M. Bhandari. 2018. "Determination and Assessment of Optimum Internal Thermal Insulation for Masonry Walls in Historic Multifamily Buildings." *Journal of Architectural Engineering*, Volume 24(3), 12 pages.
- Daeho Kang and Richard K. Strand. 2019. "Analysis of the System Response of a Spray Passive Downdraft Evaporative Cooling System." *Building and Environment*, Vol. 157, pp. 101-111.
- Kang, D. and R.K. Strand. 2019. "Competence of a Spray Passive Down-draft Evaporative Cooling (PDEC) System For Space Cooling." 16th Conference of the International Building Performance Simulation Association, Rome, Italy, (review complete, accepted for publication).

Doctoral Student Dissertations

- Lee, K.H. "Configuration and Operating Condition Design Analysis of SOFC Systems for Building Applications," Ph.D. Dissertation, May 2008.
- Chae, Y.T. "Development of Hybrid Heat Source Radiant System using Embedded Concentric Tube Heat Exchanger," Ph.D. Dissertation, December 2010.
- Kang, D. "Advances in the Application of Passive Down-Draft Evaporative Cooling Technology in the Cooling of Buildings," Ph.D. Dissertation, May 2011.
- Sturgeon, D.E. "Economic Performance of Architectural Firms: An Application of Production Theory," Ph.D. Dissertation, December 2012.
- Kim, H.S. "Advances in the Operating Condition Design Analysis of Air Based Photovoltaic Thermal Solar Roof Systems", Ph.D. Dissertation, December 2013.