Title Research Associate: Energy Studies in Buildings Laboratory

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Middle Name

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11/15/2007

Permission date

Photo

Website

Research Fields

- ☐ Atmospheric chemistry
- ☐ Biogeochemistry
- ☐ Carbon Footprint Analysis
- ☒ Climatology
- ☐ Community & Disaster Planning
- ☐ Data Analysis & Statistical Modeling
- ☐ Ecology & Ecosystem Management
- ☐ Economics
- ☒ Energy policy & technology
- ☐ Ethics
- ☐ Fire
- ☐ Forestry & Forest Management
- ☐ Geographic Information Systems
- ☐ Horticulture
- ☐ Human Impacts - economics
- ☐ Human Impacts - health
- ☐ Human Impacts - policy
- ☐ Hydrology
- ☐ Impacts - agriculture & horticulture
- ☐ Impacts - ecosystems, populations
- ☒ Impacts - physical
- ☐ Instrumentation
- ☐ Mitigation Policy
- ☐ Modeling Climate
- ☐ Modeling Ecosystems
- ☐ Modeling Socioeconomic Processes
- ☐ Natural Resource Policy & Planning
- ☐ Outreach & Engagement
- ☐ Paleoclimatology
- ☐ Paleoecology
- ☐ Physical Ecology
- ☐ Physiological Ecology
- ☐ Urban Ecology
- ☐ Water Policy & Planning
- ☒ Other...

please see list of other research fields under "Specific Research Interests"

Specific Research Interests

Mr. Kline is a research faculty at the Energy Studies in Buildings Laboratory (ESBL), whose research projects are directed at understanding how buildings and related transportation and land use systems determine energy/resource use; developing new materials, components, assemblies, whole buildings and communities with improved performance; and developing design tools that enable professionals to design more efficient communities and buildings. Lab staff includes architects, engineers and computer scientists with experience on a broad range of projects. The lab also draws on other university faculty in physics; planning, public policy and management; business; economics; landscape architecture; architecture; and other research groups as necessary to address the unique requirements of each project. The lab's facilities include a computer simulation laboratory, two artificial skies, two heliodons, and boundary layer wind tunnel.

Other research fields: community development, building orientation, water conservation/reclamation/reuse, permeable surfaces, building form, earth contact, appropriate size and growth, space utilization, space reuse, windows and openings, sun shading, furniture and equipment, exterior and interior materials and finishes, structural materials, passive and active solar systems, thermal transfer, radiant heating and cooling, renewable energy sources, daylighting, efficient electric lighting, conserving systems and equipment, systems integration, smart controls, system commissioning, building monitoring, staff training, green maintenance, occupant awareness, lifecycle assessment, integrated design, energy modeling, regulatory initiatives, institutional initiatives, environmental education, future technologies, innovation, climate analysis for building design, microclimate analysis

Projects

Summary of projects
In the past 20 years, ESBL has completed 16 million dollars of externally-funded research and provided consulting on over 17 million square feet of buildings in the Northwest and around the world. In addition to research, that lab has also written several textbooks and conducted workshops and seminars for engineers, architects and citizens on how to design energy efficient buildings and communities.

Selected Current and Past Lab Projects
High Performance Classrooms: lower cost and higher performance classrooms
Daylighting Patient Rooms in Hospitals: saving energy and improving patient well-being
Configuring Structural Systems to Improve the Opportunity for Daylighting
Carbon Neutral Building Initiative: developing climate analysis design tools for building design professionals
Attic and Crawlspace Ventilation Air Heat Exchanger: patent applied for
Manually Activated Shade Control
Stressed Skin Insulating Core Panel Demonstration House
Energy Scheming software

Selected Recent Publications

Natural Ventilation in Northwest Buildings, 2004; with J. Kline, G. Livingston, D. Northcutt, E. Wright.

Energy Scheming, with T. Sekiguchi and J. Kline, University of Oregon, Eugene, Oregon. *1.0,* 1989. *2.0*, 1993. *2.5*, 1997, *3.0,* 2003, *3.1*, 2006.

“Configuring structure to improve daylight access in multi-story buildings," with C. Theodoropoulos, A. Johnson, M. Hatten, C. Flint-Chatto, J. Kline, and D. Northcutt, *Proceedings of the Architectural Research Centers Consortium 2007 Spring Research Conference*, 2007.

"A Prototype High-Performance Classroom for the Pacific Northwest," March 2007, with T. Blomquist, J. Conduff, M. Hatten, L. Jensen, J. Kline, G. Livingston, D. Northcutt, H. Rudolf, and M. Wilkerson, to the Northwest Energy Efficiency Alliance.

“Daylighting Patient Rooms in Northwest Hospitals, Report #1, Daylighting Patient Rooms in Northwest Hospitals," October 2005, with J. Kline, G. Livingston, B. McDonald, C. Smith, M. Wilkerson, J. Brickman, ZGF; and D. Staczek, ZGF, to Konstrukt, Inc..

Professional Activities

Member, Construction Specifications Institute