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Abstract: Feedback Loops for Climate Change in Architectural Education

TITLE: Feedback Loops for Climate Change in Architectural Education  Climate change caused by anthropogenic greenhouse gas emissions is perhaps the most significant challenge facing us all. Architecture 2030, an initiative to reduce the building sector’s dependence on fossil fuels and mitigate greenhouse gas emissions has established target reductions to eliminate the use of fossil fuels in building operations. To accomplish those reduction targets we in architectural education—faculty, students, and practitioners—must learn and teach how to design buildings that reduce or, better, eliminate our dependence on such nonrenewable energy sources. However, architects are not fully prepared to address the current national and global energy crises because they do not receive adequate training. This is in part because the discipline lacks a tradition of evaluating its own buildings, but also because the engineering-based disciplines, each with their own approach, language, and metric, further fragment our profession. We believe the key to a sustainable future lies in a better and closer union between the fields of architecture and engineering through feedback loops between education and practice. This poster presentation describes key implementation strategies through building investigations and post-occupancy evaluations, of examining design intentions (of practice), management (process), and outcomes (performance). Such feedback loops can positively influence designers at a formative stage in their education, and consequently embed an intuitive understanding for integrated design; research based design process, and validated outcomes.

Bio: Alison Kwok is professor of architecture at the University of Oregon and teaches design studios, seminars in climatic design, lighting, and building performance, as well as courses in environmental technology. Her current research includes adaptive and mitigation strategies for climate change, thermal comfort, natural ventilation, post-occupancy evaluation, and case studies of building performance. She is author, with Walter Grondzik of The Green Studio Handbook: Environmental Strategies for Schematic Design. She and Grondzik revised the 10th edition of Mechanical and Electrical Equipment for Buildings, with the 11th edition in press. Kwok has a long involvement with the Vital Signs Curriculum Materials Project, a national effort coordinated by the University of California, Berkeley (funded by the Energy Foundation, Pacific Gas & Electric Utility, and NSF). She was principal investigator of the Agents of Change project, funded by the U.S. Department of Education Fund for the Improvement of Post-Secondary Education (FIPSE). Kwok has served in several capacities and as a board member for the Architectural Research Centers Consortium, is a past-president of the Society of Building Science Educators, is a member of several ASHRAE
committees, and of the USGBC's Formal Education Committee. She is recipient of the American Solar Energy Society's Women in Solar Energy Award and the Faculty Excellence Award from the University of Oregon. Professor Kwok has lectured and given workshops in the UK, China, Korea, Japan, and throughout the United States.