

PROMOTION RECOMMENDATION
The University of Michigan
A. Alfred Taubman College of Architecture and Urban Planning

Lars P. Junghans, assistant professor of architecture, A. Alfred Taubman College of Architecture and Urban Planning, is recommended for promotion to associate professor of architecture, with tenure, A. Alfred Taubman College of Architecture and Urban Planning.

Academic Degrees:

Ph.D. 2005 Eidgenössische Technische Hochschule (ETH), Zürich, Switzerland
Dip.Arch. 2001 Technical University, Braunschweig, Germany

Professional Record:

2010 – Present Assistant Professor of Architecture, A. Alfred Taubman College of Architecture and Urban Planning, University of Michigan
2008 – 2010 Lecturer, University of Liechtenstein, Vaduz, Liechtenstein
2006 – 2010 Project Manager, TeamGMI, Vaduz, Liechtenstein
2006 – 2010 Consultant, Baumschlager & Eberle Architects, Vaduz, Liechtenstein
2006 Post-Doctoral Studies, University of California, Berkeley, CA

Summary of Evaluation:

Teaching: Professor Junghans has made a significant contribution to the education of undergraduate, graduate, and doctoral students in sustainable building systems, an area critical to comprehensive design. He plays a valuable role by revising existing building technology courses in terms of issues of sustainability and restructuring them to include an empirically-based design component. His success with this pedagogy is based on his own background: a doctoral level researcher who was trained as an architect and who works with both architecture and engineering firms on built projects.

Professor Junghans has established important links to students in other units, including the Department of Civil and Environmental Engineering and the School of Natural Resources and the Environment through his interdisciplinary cluster hire. Although technical in nature, Professor Junghans's courses consistently engage broader issues of design. His pedagogical approach to sustainable building systems is based on his belief that this subject should always be taught in combination with excellence in architectural design. This results in holistic designs that are both aesthetic and sustainable. In regard to doctoral education, Professor Junghans has advised nine Ph.D. students, both internal and external, in various capacities. His course evaluations and student letters consistently confirm his teaching excellence, advising wisdom and overall impact on the quality and critical thoughtfulness of student work.

Research: Professor Junghans' research operates within the field of building science and is situated within the subfields of sustainable building systems design, building systems optimization, and building physics that target the reduction of overall energy use and greenhouse gas emissions with respect to the design and operation of buildings. Professor Junghans has made contributions in passive design, algorithms for building control automation, and holistic building optimization. His work spans both practice-based research involving built work done in collaboration with architectural designers and scholarly/theoretical research in applied building science. Professor Junghans's role has been to lead the design, engineering, and post-occupancy evaluation of full building systems, from envelope composition to the mechanical systems. His "Concept 22/26" building for which he led the engineering systems design is the first commercial office building constructed to achieve

thermal comfort and adequate ventilation without the use of any active heating, cooling, or ventilation systems.

Professor Junghans has been active in disseminating his work through a broad range of well-regarded publications and conferences. He has published two individually authored book chapters, three articles in the highly regarded journal, *Energy and Buildings*, as well as articles in other reputable journals such as *Renewable Energy*, *ASHRAE Transactions*, *International Journal of Architectural Computing*, and *International Daylighting*, in addition to nine conference proceedings. He has lectured at numerous notable universities and has been an invited speaker at several international conferences. “Concept 22/26” has also received a number of design awards; most significantly the Gold Medal in the prestigious German Design Award program and the Energy Globe Prize of Vorarlberg.

Recent and Significant Publications, Exhibitions, and Awards:

- Junghans, L., Bae, N., 2016. “Influence of the uncertainties of occupant behavior on computer-based optimization process,” *Energy and Buildings*, 116: 478-497.
- Junghans, L., Darde, N., 2015. “Hybrid single objective genetic algorithm coupled with the simulated annealing optimization method for building optimization,” *Energy and Buildings*, 86: 651-662.
- Junghans, L., 2015. BE Baumschlager Eberle “22/26,” Book Chapter, Birkhauser Publisher, Ed: F. Aicher.
- Gold Metal for “Building 22/26,” German Design Award, 2015.
- Junghans, L., 2014. “Economic and ecologic of heat pump systems in buildings with different insulation levels,” *Renewable Energy*, 76: 699-705.
- Junghans, L., 2013. “Sequential equi-marginal optimization method for ranking strategies for thermal building renovation,” *Energy and Buildings*, 65: 10-18.

Service: Professor Junghans has effectively served the interests of the architecture program, Taubman College and the larger scholarly and professional world. His most notable service to Taubman College has been on the Doctoral Studies in Architecture Advisory Committee as the faculty representative of the building technology area. While on this committee Professor Junghans worked to improve research support for doctoral students and faculty in the building technology area. Professor Junghans has also participated on committees overseeing admissions and scholarships as well as a faculty search committee. In terms of service to the profession, Professor Junghans has been sought after to review the work of others in his area of expertise. He has reviewed article submissions to the journals *Energy and Buildings*, *Indoor and Built Environment*, and *Architectural Science Review*; paper proposals for academic conferences in his field including the Society for Modeling and Simulation, the Association for Computer Aided Design in Architecture, and the Building Simulation Conference of the International Building Performance Simulation Association; and grant proposals for the US Department of Energy’s Advanced Research Projects Agency-Energy.

External Reviewers:

Reviewer A: “Dr. Junghans stands out through his knowledge of and affinity with the realization of academic ideas in real buildings and vigorously inspecting their relevance to the sustainability agenda in general. The work is original, refreshing in its real life application and rigorously reported and verified.”

Reviewer B: “Research methods tend to be solid throughout, the writing is clear, and the overall scholarship is excellent, with a recent trend to addressing special topics in the building performance

simulation field, a timely pursuit. His recognition as an expert is also documented through his involvement as conference lecturer and peer reviewer for highly considered journals.”

Reviewer C: “...the work on his Concept 22/26 house is the most significant of his works. The peer review of this work in multiple conference and in articles about his work demonstrates...its significance. Not many faculty have managed to accomplish such a piece and it greatly helps in establishing his credibility in this field. Simulations alone are always suspect but having constructed an actual building, and a very nice one too, to monitor and test is fantastic.”

Reviewer D: “...his research, his scholarly production, and his achievements as a teacher meet high academic standards. I was impressed by the candidate’s ability to engage in architectural and engineering practice, while taking the lessons learned from practice to a higher level: analyzing and extracting new knowledge...Professor Junghans’s [sic] expertise and approach to research represent a highly valuable contribution to the field he is operating in.”

Reviewer E: “...I find Prof. Junghans to be a unique scholar, active in both fundamental building science and environmental consulting practice...Prof. Junghans has received most attention for his involvement in BE’s Building 22/26 project...and has been credited as the originator of the building’s energy concept. The building captures the imagination of many designers and constitutes a paradigm shift away from the ever-increasing separation of design and environmental building concepts. Having been part of the design team for such an important contemporary building constitutes a major accomplishment. From a building science standpoint the building has made architectural history.”

Reviewer F: “The academic work presented in this tenure dossier is inventive, integrative and interdisciplinary. Its methods are essentially analytical, albeit in service to design. In so being, they seek to organize and unify the disparate conditions of our practice in which that which is technical is often at odds with that which is formal and material. It is inspiring to see the work of an academic that seeks to create such bridges. I believe this tenure dossier to be sizeable, robust, and accomplished.”

Summary of Recommendation:

Professor Junghans is an accomplished researcher and scholar who has made significant contributions to the field of building science and the subfields of sustainable building systems design, building systems optimization, and building physics. He effectively brings an intelligent, innovative and strategic approach to his teaching and is an active contributor providing valuable service to the college, university and profession. It is with the support of the Taubman College Promotion and Tenure Committee and the Executive Committee that I recommend Lars P. Junghans for promotion to associate professor of architecture, with tenure, A. Alfred Taubman College of Architecture and Urban Planning.



Robert Fishman
Interim Dean and Professor
A. Alfred Taubman College of Architecture and Urban Planning

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