

## JUDITH H HEERWAGEN, PhD

### EDUCATION

1966 B.S., Communications, University of Illinois  
1982 Ph.D., Psychology, University of Washington

### EXPERIENCE OVERVIEW

Dr. Heerwagen is an environmental and behavioral psychologist whose work focuses on evidence-based design and the impact of the built environment on occupant health, wellbeing and performance. She currently serves as a research psychologist in the US General Service Administration's Office of Federal High Performance Buildings. Prior to joining GSA in 2009, she had her own research and consulting firm where she worked with clients to integrate social science research into design projects. Her clients included both the public and private sectors organizations. She was a senior scientist at the Pacific Northwest National Laboratory and a research faculty member at the University of Washington, College of Built Environments where she is currently an affiliate faculty member in Architecture. She is co-editor of *Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life* which won the 2009 Publishers Award in architecture and urban planning. She received the 2014 Design for Humanity Award from the American Society of Interior Designers.

### WORK EXPERIENCE

2009 - Research Psychologist, US General Services Administration, Office of Federal High Performance Green Buildings

2009 Distinguished Visiting Scholar, Portland State University, Center for Sustainable Processes and Practices

2000 - 2010 Principal, J.H. Heerwagen & Associates, Inc.

2000 - 2018 Affiliate faculty, University of Washington, Department of Architecture

1999 Principal and Co-Director of Research, Space LLC, Seattle, WA

1994- 1999 Staff Scientist, Pacific Northwest National Laboratory

1992-94 Visiting Scientist, Battelle Seattle Research Center

1982-92 Center for Planning and Design, University of Washington  
College of Architecture and Urban Planning

1966-75 Public relations and communications positions at Harvard University, Cornell University and Wellesley College.

## **HONORS AND AWARDS**

Green Champion Award, US Center for Disease Control, 2018  
World Corporate Sustainability Roundtable award, 50 Most Impactful Green Leaders 2018.  
Design for Humanity Award, American Society of Interior Designers, 2014  
Publishers Award for best book in architecture and planning for *Biophilic Design*, 2009.  
Honorary Fellow, New Ways of Working Network, 2010  
Honorary Fellow, Institute of Green Professionals, 2009  
EnvironDesign Magazine, Environmental Champion Award, 2005  
Guest Lecturer, Yale University, 2005  
Pacific Northwest National Laboratory, Organizational Performance Award, 1999  
University of Washington, Faculty Achievement Award, 1990

## **ADVISORY COMMITTEES AND SPECIAL EVENTS**

WELL Building Standard Advisor (Mind and Research Concepts) – on-going  
International Living Future Institute, Biophilic Design Advisory Committee – on-going  
Committee Chair, Living Future Stephen R. Kellert Biophilic Design award  
Google, Aclima, GSA Fellows Research Program  
Google Indoor Environmental Quality research program  
AIA Design and Health Initiative  
NIH Health in Buildings Consortium (founding member)  
Environmental Defense Foundation Climate Corps  
Building Technology Research and Development, National Science & Technology Council

## **CURRENT GSA WORK**

Focus on (1) implementing and testing hybrid work processes linking home, office and third places and (2) the psychological, cognitive, and social value of work.

Invited article on biophilia for the *Journal of Biophilic Design*.

Invited book chapter on biophilic design (Taylor and Frances book).

2030 Future of Federal Work initiative to identify potential changes to work and workplace resulting from adaptations associated with the Covid-19 pandemic and emerging technologies that will further influence how and where work is done.

Health and Buildings Research Program at GSA focusing on (1) light for circadian functioning and (2) workspace design and environmental quality linked to human health and performance. Both research projects deployed wearable and stationary sensors to better understand variation in occupant outcomes across buildings and specific design features.

## **PREVIOUS RESEARCH AND CONSULTING WORK**

Work with clients has included serving as member of multi-disciplinary design teams, conducting occupant and organizational needs assessment, biophilic design approaches, post occupancy evaluation, and the integration of human behavioral principles into design.

*Oregon Sustainability Center.* Design for new ways of working and behavioral change needed to achieve net zero energy; development of research protocol to assess building performance. Research, design concepts and guidelines for green schools of the future.

*Superior Court, Maricopa County, AZ, and Gould Evans Architects.* Development and implementation of design principles and concepts that recognize crime victims' rights in the new Superior Courthouse.

*U.S. General Services Administration, Office of Applied Science,* behavioral science advisor. Projects included workplace strategy development, assessing workplace effectiveness, and white papers on mobility, sustainability, workplace strategy and post occupancy evaluation

*NBBJ,* Workplace strategy team for the Bill and Melinda Gates Foundation.

*Albuquerque Public Schools,* Research on student experience in charter schools and large public schools, with a focus on how the school environment influences decisions to stay in school or drop out.

*William McDonough + Partners.* Biophilic design concepts for the Google campus master plan.

*City of Seattle,* Post Occupancy Evaluation of City Hall; sustainable design strategies.

*Cisco Systems,* Client Engagement Process (with Business Place Strategies)

*Boeing Commercial Airplane Company.* Airplane interior lighting design for the 787 Dreamliner; white papers addressing human factors of new airplane concepts.

*RTKL.* National Institutes of Health, Human factors recommendations for the Campus Sustainable Revitalization Program

*Herman Miller, Inc.,* Workstation design concepts to enhance mood and creativity

*Johnson Controls,* Psychological factors of automobile lighting design

*Sun Microsystems,* Behavioral and organizational implications of dispersed work teams

*Public Works & Government Services, Canada,* Protocol for Evaluating Office Design

*Fidelity Investments,* Post Occupancy Evaluation for new workplaces.

*U.C. Berkeley, Center for the Built Environment,* Evaluation of informal team work spaces

*Pacific Northwest National Laboratory:*

Projects included post occupancy evaluation of the Philip Merrill Environmental Center and the Herman Miller Greenhouse, human factors design for the Mexican Petroleum Institute,

social impact analysis of the Army's Chemical Weapons Incineration Program, economic impact of a new laboratory at PNNL, various white papers for USDOE on the human factors of energy and sustainability.

*University of Washington:*

Post occupancy evaluation of energy efficient buildings; laboratory research on lighting preferences and Seasonal Affective Disorder, various research projects on environmental preferences and habitability.

## **PRESENTATIONS AND INVITED LECTURES**

Keynote, Biophilic Design, American Society of Landscape Architects, Atlantic City, 2023.  
Invited speaker, NeoCon, Chicago. The Distributed Mind and Workplace Design. 2023

Resilience, Health and Design. 2021, invited speaker, AIA Healthcare Architects  
Biophilic Lighting Design for Healthcare, invited speaker, 2021.  
Biophilia and Workplace Design, 2021, Environmental Design Research Association.  
Bio-inspired Design, 2021, invited speaker, Design Thinkers Conference.  
Circadian Light and Health, 2021, invited speaker. University of Oregon.  
Biophilia and Well Being, 2020 , invited speaker, Rising Waters Conference.  
Biophilic Light, 2020, invited speaker, Signify Lighting.  
Biophilic Design in the Urban Context, 2020, invited speaker, Sustainability Network.  
Serenbe summit on biophilic design, invited speaker, 2020 (postponed due to corona virus)  
HealthDesign, invited speaker on health-focused building, 2019.  
Green Build, speaker on health and performance impacts of design, 2018  
Living Future, invited speaker on biophilic design, Portland, 2018  
Design Lights, keynote speaker on circadian light, Portland 2018  
Living Future, Biophilic Design Summit invited speaker, Seattle, 2017 and 2018  
Paula Manship Endowed Lectureship, Louisiana State University, 2016  
DOE Solid State Lighting Forum, Denver, 2016  
Living Future, Seattle 2016  
Living Future, Seattle, 2015  
NIH Health in Buildings Conference, Washington DC 2015  
Living Future, Portland, 2014  
ASHRAE High Performance Buildings, San Francisco, 2014  
AIA, Seattle, 2013  
Powerful Energy, Seattle, 2013 (keynote)  
Living Future, Seattle, 2013  
Greenbuild, 2012, San Francisco (special sets presentation)  
Climate, Buildings and Behavior, 2012, Garrison Institute, Garrison NY  
Living Futures, Portland, 2012  
Center for the Built Environment, UC Berkeley, 2011  
Future Energy, Portland, 2011 (keynote)  
Greenbuild, Toronto, 2011  
Greenbuild, Chicago, 2010  
Behavior, Energy & Climate Change, Sacramento, 2010  
Distinguished lecturer on Biophilic Design, Haworth, Inc. 2010

Living Futures, May 2010  
USGBC, Federal Summit, May 2010  
ASHRAE Existing Buildings, April 2010  
AIA Portland, Workshop on Healthcare Settings, 2009  
Webinar on Workplace Performance Metrics, CoreNet (with Christine Barber), 2009  
Webinar on Biophilic Design, Cascadia GBC (with Tim Beatley and Bert Gregory), 2009  
Oregon Sustainability Center Design/Research Charette, key note speaker, 2009  
Webinar on Social Impacts of Sustainability, Cascadia GBC (with Vivian Loftness), 2008  
Greenbuild, Boston, November 2008  
NeoCon, Chicago, June 2008  
AIA Annual conference, Boston, May 2008  
NBBJ health care forum, February 2008  
University College London and Alexi Marmot Associates, London, November 2007  
ARC-US, Ft. Lauderdale, November 2007  
Better Bricks Sustainability Lecture Series, Portland and Boise, May 2007  
Living Buildings Challenge, Seattle, April 2007  
AIA Professional Practice conference, Chicago, April 2007  
Greenbuild, Denver, November 2006  
Rethinking Sustainable Construction, Sarasota, FL, Sept. 2006.  
Biophilic Design Symposium, Yale University, May, 2006.  
Green Med Conference, Seattle, Mar 2006  
Seattle Sustainable Design Series, Feb 2006  
National Institute of Health, Green Healthcare Roundtable, Washington DC, Jan. 2006  
Greenbuild, Atlanta, Nov. 2005  
ASID conference, San Diego, Mar. 2005  
Yale University, multiple invited talks, Mar 2005  
Iowa Sustainability Conference, Ames, IA, Keynote speaker, Mar. 2005  
Building Design Exchange, Chicago, Feb. 2005  
Greenbuild, Portland, OR, Nov. 2004  
U.S. State Department/Harvard, Strategic Issues for Intelligence, Sept. 2004  
Cleveland Green Building Coalition, Sept. 2004  
Future Work Conference, AIA Charlotte, NC, Aug 2004  
Greening the Heartland, Columbia, MO, March 2004, Keynote speaker  
IIDA Sustainability Conference, Portland, OR, November 2003, keynote speaker  
National Academy of Sciences, Healthy Buildings, November 2003  
USGBC Federal Summit, Washington DC, May 2003  
Arkansas Green Building Association, May 2003, master speaker  
Wisconsin Green Building Alliance, April 2003, Keynote speaker  
Greenprints, Feb. 2003, Atlanta, GA, master speaker  
US Green Building Conference, Austin, TX, Nov 2002  
EnvironDesign6, Seattle, WA., April 2002  
Healthy Buildings, Seattle, WA, Feb. 2002  
British Columbia Psychological Association, Keynote speaker, Feb. 2002  
ASID Super Campus, New Orleans, Feb. 2002  
ASHRAE Winter meeting, Atlantic City, Jan. 2002  
Association of Professional Energy Managers Symposium on Daylight, Portland, Dec. 2001

US Green Building Summit, Green U, Tucson, August 2001  
Buildings for the 21<sup>st</sup> Century Lecture Series, Washington DC, May 2001  
Post Occupancy Building Evaluation Symposium, National Academy of Sciences, Mar. 2001  
ASID Super Campus, Austin, Feb. 2001  
Expert Review Panel, LEED Commercial Interior rating system, Pocantico, NY., Dec. 2000  
National Academy of Sciences, Symposium on IT and Buildings, Oct. 2000  
Department of Defense, Pollution Prevention Conference, Portland, OR, Oct. 2000  
Powerful Business, Seattle, September 2000  
Greenworld, IIDA, Seattle, May 2000  
Portland IIDA April 2000  
US Green Building Council, Federal Summit, March 2000  
Skidmore, Owings & Merrill, Design Series on Sustainability, kick-off speaker, January 2000.  
Cost + Value in Building Green Symposium, University of British Columbia, November 1999  
National Summit on Building Performance, Washington DC, October 1999  
Whole Building Technology Roadmap Workshop, USDOE, Washington DC, October 1999.  
National Sustainable Buildings Workshop, University of Michigan, October 1999  
Interior Design Research Summit, La Jolla, CA, Salk Institute, October 1999  
National Workshop on Workplace Productivity, USGSA, Alexandria, VA, September 1999  
Expert Review Panel, LEED building rating system, Pocantico, NY, August 1999  
Lighting Technology Roadmap Expert Workshop, USDOE, Columbus, OH, July 1999  
Federal Facilities Council Conference, Washington DC, April 20, 1999.  
Expert Panel on the Future of the Workplace, Herman Miller, Inc., June 28-29, 1999  
National Academy of Sciences Workshop on Productivity, Washington DC, April 1998.  
General Services Administration Workshop on Productivity, Washington DC, April 1998

## **PUBLICATIONS**

Book chapter on biophilic design (for 2024 publication).

*Journal of Biophilic Design*, article on how biophilic design influences well being (2023.)

Co-Editor, *Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life*. 2008, New York: Wiley (with S.R. Kellert and M. Mador). Winner of 2009 Publishers Award for best book in architecture and planning.

### **Buildings and Health**

Co-author with CM Lindberg et al, 2018. Effects of office workstation type on physical activity and stress. *Occupational and Environmental Medicine*, British Medical Journals, pp 1-7.

### **Biophilic Design, Health, and Well Being**

J. Heerwagen, Biophilia, Design and the Adapted Mind, 2018, In *Healthy Environments/Heating Spaces* (Eds. T. Beatley, C Jones, and R. Raney) University of Virginia Press.

J. Heerwagen, 2008. *Healthy Buildings: A Proposal for a Research Initiative on Health and Indoor Environments*. Prepared for NIH, Environmental Quality Branch,, Office of Research Facilities.

S.R. Kellert, J. Heerwagen and M. Mador (Eds.), 2008. *Biophilic Design: The Theory, Science and Practice of Bringing Buildings to Life*. New York: Wiley.

J. Heerwagen and B.Hase, 2001. *Building Biophilia: Connecting People to Nature*. *Environmental Design + Construction*. March/April.

J. Heerwagen and G. Orians, 2002. The Ecological World of Children. In P. Kahn and S. Kellert, *Children and Nature*. Cambridge, MA: MIT Press.

R. White and J. Heerwagen, 1998. Nature and Mental Health. In *The Environment and Mental Health*. A. Lundberg (Ed.) Mahwah, NJ: Earlbaum,

G.H. Orians and J.H. Heerwagen, 1993. Humans, Habitats and Aesthetics. In S.R. Kellert and E.O. Wilson, *The Biophilia Hypothesis*. Washington DC: Island Press.

G.H. Orians, and J.H.Heerwagen, 1992. Evolved Responses to Landscapes. In J. Barkow, J. Toobey and L. Cosmides, *The Adapted Mind*. New York: Oxford University Press.

## **Psychological Benefits of Design**

J. Heerwagen, 2004. The Psychological Value of Space, *Whole Building Design Guide*, [www.wbdg.org](http://www.wbdg.org)

J. Heerwagen, 1998. Design, Productivity and Well Being: What are the Links? Conference Proceedings, AIA Conference on Highly Effective Facilities, March 12-14, Cincinnati, OH.

J. Heerwagen, J. Heubach, J. Montgomery and W. Weimer, 1995. Environmental Design, Work and Well Being. *American Journal of Occupational Health Nurses*, 43(9): 458-468.

J. Heerwagen, 1990. Affective Functioning, Light Hunger and Room Brightness Preferences. *Environment and Behavior*, 22(5):608-635.

J. Heerwgen and G. Orians, 1986. Adaptations to Windowlessness: A Study of the Use of Visual Décor in Windowed and Windowless Offices *Environment and Behavior*, Vol 18(5): 623-629.

J. Heerwagen and D. Heerwagen, 1986. "Lighting and Psychological Comfort." *Lighting Design and Application*, Vol. 16 (4): 47-51

## **Human Factors of Sustainability**

J. Heerwagen, 2006. Investing in People: The Social Benefits of Sustainable Design. Rethinking Sustainable Construction '06, Sarasota, FL.Sept19-22, 2006.

J. Heerwagen and L. Zagreus, 2005. *The Human Factors of Sustainability: Post Occupancy Evaluation of the Philip Merrill Environmental Center*, University of California, Berkeley: Center for the Built Environment.

J. Heerwagen, 2000. Green Buildings, Organizational Success, and Occupant Productivity, *Building Research and Information*, 28 (5/6): 353-367.

J. Heerwagen, 2000. Green Buildings and Worker Well Being. *Environmental Design + Construction*, July/August, 24-29 (invited article).

J. Heerwagen, 2001. A Balanced Scorecard Approach to Post Occupancy Evaluations: Using the Tools of Business to Evaluate Facilities. *Post Occupancy Evaluation: Where are We Now?* National Academy of Sciences, Federal Facilities Council, National Academy Press.

J. Heerwagen and J. Ouye, 1999. Strategic Commissioning. Conference Proceedings of the National Conference on Building Commissioning, Portland, OR, May 1999.

### **Workplace Strategy and Effectiveness**

J. Heerwagen, K. Kampschroer, B. Steverson, and B. Gilligan, 2017, The People-Building Interface: It's a Two Way Street. In D. Clements-Croome, *Creating the Productive Workplace*, London: Spon Press.

K. Kampschroer, J.H. Heerwagen, and K.M. Powell, 2007. Creating and Testing Workplace Strategy. *California Management Review*, 49(2): 119-137.

J. Heerwagen, K. Kelly, K. Kampschroer, and K. Powell, 2006. The Cognitive Workplace. In *Creating the Productive Workplace*, D. Clements-Croome (ed.), London: Spon Press.

K. Kampschroer and J. Heerwagen, 2005. The Strategic Workplace: Development and Evaluation., *Building Research and Information*, 33(4): 326-337.

J. Heerwagen, K. Kampschroer, K. Powell, and V. Loftness, 2004. Collaborative Knowledge Work Environments, *Building Research and Information*, Nov-Dec, 32(6): 510-528.

J. Heerwagen, 1999. How do Buildings Affect Performance? *Energy and Environmental Management*, (invited article), Fall, 26-29.