Shreshth Nagpal

PhD | CEM | CPHD | BEMP | HBDP | LEED AP BD+C

+1 347 226 0221
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EDUCATION

AUG 2016 – JUN 2019 **PhD BUILDING TECHNOLOGY** | Massachusetts Institute of Technology, Cambridge MA
Thesis: Auto-calibrated urban energy models for greenhouse gas emissions management

AUG 2004 – DEC 2005 **MASTER OF SCIENCE IN BUILDING DESIGN** | Arizona State University, Tempe AZ
Thesis: Effect of building integrated photovoltaics on whole building energy performance

SEP 1997 – MAY 2002 **BACHELOR OF ARCHITECTURE** | School of Planning & Architecture, New Delhi, India
Thesis: Design proposal for Net-Zero-Energy mixed-use campus in Shimla, India

AFFILIATIONS

ACCREDITATIONS

SINCE AUG 2015 **Certified Energy Manager** | Association of Energy Engineers

SINCE FEB 2014 **Certified Passive House Designer** | International Passive House Institute

SINCE JUL 2013 **Building Energy Modeling Professional** | ASHRAE

SINCE DEC 2011 **High Performance Building Design Professional** | ASHRAE

SINCE SEP 2005 **LEED AP, Building Design and Construction** | USGBC

ORGANIZATIONS

SINCE AUG 2015 Member | **Association of Energy Engineers**

SINCE SEP 2011 Member | **ASHRAE**

SINCE AUG 2010 Member | **Indian Institute of Architects**

SINCE DEC 2003 Registered Architect | **Council of Architecture, India**

EXPERIENCE

SEP 2018 – PRESENT
PRINCIPAL | Elementa Engineering, New York NY
Leading and managing the firm's Design Analytics group with a charter of decarbonization and resilience through the design of better built environments by bringing together extensive knowledge and experience in architecture and building technology.

MAR 2013 – JUL 2016
ASSOCIATE | Atelier Ten, New York NY
Led one of two New York project delivery groups, supervised and mentored a team of ten designers and senior designers, and managed several high-profile net-zero-energy and net-positive-carbon projects while working closely with owners, architects & engineers.

SEP 2009 – DEC 2012
ADJUNCT FACULTY | Institute of Environmental Architecture, Mumbai, India
Developed curriculum, assessment methods and conducted lectures for the subjects of Thermal Comfort & Passive Design, Energy Efficient Building Design, and Green Building Rating Systems; and guided five Masters in Environmental Architecture dissertations.

JUL 2009 – MAR 2012
TECHNICAL HEAD – SUSTAINABILITY | AECOM-India, Mumbai, India
Led the building physics and energy analysis practice within the national sustainability solutions group, supervised and mentored the team that grew from five to fifteen designers and engineers with over two hundred projects in India.

NOV 2010 – DEC 2011
CONSULTING ARCHITECT | Subhash Shah & Associates Architects, Mumbai, India
Developed design concepts, conducted environmental performance evaluations and prepared schematic drawings for several multifamily mid-rise residential projects in India.

JAN 2006 – JUN 2009
SENIOR ASSOCIATE | Syska Hennessy Group, New York NY
Developed daylight and energy analysis models that informed the design of several large-scale projects including airports and super-tall skyscrapers in the US, China & Korea.

AUG 2004 – DEC 2005
SOLAR ENERGY LAB ASSISTANT | Tait Solar Company, Tempe AZ
Conducted solar experiments to test and rate building fenestration product performance.

AUG 2002 – JUL 2004
PROJECT ARCHITECT | TEAM, New Delhi, India
Developed construction drawings for a variety of commercial and institutional projects.

JUN 2000 – SEP 2000
INTERN ARCHITECT | Larsen & Toubro, Mumbai, India

KEY PROJECTS

ELEMENTA ENGINEERING | New York, NY

MAR 2019 – ONGOING
Sidewalk Labs PMX | Sidewalk Labs
Designed passive strategies to maximize thermal and visual comfort and energy efficiency.

FEB 2019 – ONGOING
ASHRAE Headquarters, Atlanta GA | McLennan Design
Designed high performance design strategies to achieve net zero energy operations.

JAN 2019 – MAY 2019
Yale Berkeley College, New Haven CT | Yale University Office of Facilities
Designed enclosure retrofit strategies necessary for mechanical system decarbonization.

SEP 2018 – APR 2019
Swarthmore College Campus, Swarthmore PA | Swarthmore College
Modeled and analyzed future energy scenarios to develop a campus decarbonization plan.

ATELIER TEN | New York, NY

MAR 2016 – JUL 2016
General Dynamics Headquarters, Reston VA | LSM Architects
Assessed the feasibility of several passive strategies at schematic design phase.

JUL 2015 – JUL 2016
Almono Mill 19 Redevelopment, Pittsburgh PA | MSR Architects
Provided environmental design consulting to help design a carbon neutral office building.

JUN 2015 – JUL 2016
Krause Gateway Center, Des Moines IA | Renzo Piano Building Workshop
Evaluated high performance mechanical systems & controls to maximize energy efficiency.

MAY 2015 – JUL 2015
Uber Headquarters, Mission Bay CA | SHoP Architects
Designed façade and natural ventilation controls to passively achieve thermal comfort.

JUL 2014 – SEP 2015
Wellesley Pendleton West Renovation, Wellesley MA | KieranTimberlake
Assessed natural ventilation configurations to optimize thermal comfort and energy use.

JAN 2014 – JUL 2016
Principal Financial Group Headquarters, Des Moines IA | OPN Architects
Designed a dynamic atrium skylight and controls to maximize comfort & energy efficiency

JUL 2013 – AUG 2015
Jerome L. Greene Science Center, New York NY | Renzo Piano Building Workshop
Completed detailed energy analysis for benchmarking and incentive calculations.

MAR 2013 – MAR 2015
MSKCC Clinical Laboratory Building, New York NY | Perkins+Will Architects
Evaluated high performance mechanical systems & controls to maximize energy efficiency.

MAR 2013 – SEP 2013
David H. Koch Center for Cancer Care, New York NY | Ennead Architects
Developed energy models to optimize façade, exterior shading and HVAC configuration.

AECOM-INDIA | Mumbai, India

NOV 2011 – JULY 2012 **Infosys Software Development Park, Jaipur, India** | RSP architects
Designed passive solutions for occupant comfort in the hot, dry & sunny desert region.

AUG 2009 – OCT 2009 **Indian School of Business, Mohali, India** | Perkins Eastman
Developed massing, orientation, and fenestration criteria for the campus masterplan.

SUBHASH SHAH & ASSOCIATES ARCHITECTS | Mumbai, India

JAN 2013 – MAR 2013 **Mixed Use Development, Bhubaneshwar, India** | Bivab Golden Triangle
Designed masterplan for 500-unit, 70-acre campus to maximize solar & wind access.

JAN 2012 – MAR 2012 **Courtyard Houses, Aurangabad, India** | Viresh Developers
Low-rise high-density residences designed to traditional principles & passive controls.

MAR 2011– AUG 2011 **Sewri High Rise Residential Tower, Mumbai, India** | Mantri Realty
Designed the 60-unit tower with recessed windows & terracotta screens for solar control.

SYSKA HENNESSY GROUP | New York, NY

JUL 2012 – SEP 2012 **New United States Courthouse, Los Angeles CA** | SOM
Developed daylight and energy studies to optimize atrium and facade configuration.

JUN 2011 – SEP 2012 **Lawrence Public Library, Lawrence KS** | Gould Evans Architects
Completed extensive energy and daylight models to minimize use of natural resources.

JUN 2011– MAR 2012 **Lower Sproul Plaza Development, UC Berkeley CA** | MRY Architects
Completed energy and daylight analysis to help design building façade configuration.

AUG 2008 – JUL 2009 **Miami Science Museum, Miami FL** | Grimshaw Architects
Conducted computational fluid dynamics studies to maximize outdoor thermal comfort.

APR 2007 – MAY 2008 **United Nations Headquarters Renovation, New York NY** | UN Capital Master Plan
Completed building energy analysis to optimize envelope & fenestration configuration.

JUN 2006 – OCT 2008 **Howard Hughes Medical Institute, Chevy Chase MD** | Bowie Gridley Architects
Developed building energy, daylight and airflow dynamics models for design optimization.

TEAM FOR ENGINEERING ARCHITECTURE & MANAGEMENT | New Delhi, India

JUN 2002 – JUL 2004 **National Gallery for Modern Art, New Delhi, India** | Central Public Works Department
Articulated fenestration configuration to regulate daylight and glare in art exhibit spaces.

PUBLICATIONS

REFEREED JOURNAL ARTICLES

MAY 2019 Nagpal, S., Hanson, J., Reinhart, C. | **A framework for using calibrated campus-wide building energy models for continuous planning and greenhouse gas emissions reduction tracking** | Applied Energy

APR 2018 Nagpal, S., Reinhart, C. | **A comparison of two modeling approaches for establishing and implementing energy use reduction targets for a university campus** | Energy and Buildings

MAR 2018 Nagpal, S., Aijazi, A., Mueller, C., Reinhart, C. | **A methodology for auto-calibrating urban building energy models using surrogate modeling techniques** | Journal for Building Performance Simulation

FEB 2018 Letellier, S., Nagpal, S., Kummert, M., Reinhart, C. | **Balancing demand and supply: linking neighborhood-level building load calculations with detailed district energy network analysis models** | Energy

NON-REFEREED ARTICLES

MAY 2019 **New York City's Climate Mobilization Act: Decarbonizing NYC's Buildings**
Nagpal, S. | Elementa Engineering White Paper

DEC 2014 **Operational and climatic parameters in laboratory HVAC system selection**
Nagpal, S., Pillai, J. | Laboratory Design News

DEC 2009 **Green buildings catching up fast in India**
Interview | The Hindu

NOV 2008 **Is BIM ready for prime-time engineered systems?**
Roundtable Discussion | Consulting Specifying Engineer

APR 2008 **Energy modeling for sustainability**
Interview | GreenSource

MAY 2007 **Tomorrow's climate responsible projects go beyond LEED**
Callan, D., Nagpal, S. | Real Estate Weekly

MAY 2005 **Using sun power to beat heat**
Interview | East Valley Tribune

PEER-REVIEWED CONFERENCE PAPERS

APR 2019 Bayomi, N., Nagpal, S., Rakha, T., Reinhart, C., Fernandez, J. | **Aerial thermography as a tool to inform building envelope simulation models** | SimAUD, Atlanta GA

DEC 2018 Nagpal, S., Bhave, S. | **When buildings converse with climate: mediating the dialogue between climate and building design** | Passive and Low Energy Architecture, Hong Kong

NOV 2018 Arsano, A., Nagpal, S., Reinhart, C. | **A new look into energy-optimized neighborhoods with energy-efficient district systems** | Graduate Research Symposium, Chicago IL

JUN 2018 Nagpal, S., Hansen, J., Reinhart, C. | **Auto-Calibrated urban energy models as continuous commissioning and planning tools** | SimAUD, Delft, Netherlands

JUL 2015 Nagpal, S., Doda, V. | **Occupant behavior: Impact on effectiveness of passive strategies** | ASHRAE Annual Conference, Atlanta GA

JAN 2015 Nagpal, S., Bhave, S., Manudhane, R. | **Rethinking energy design guidelines for building form articulation** | ASHRAE Winter Conference, Chicago IL

SEP 2014 Nagpal, S., Pillai, J. | **Laboratory Systems: Impact of functional, operational, and climatic parameters** | ASHRAE/IBPSA Building Simulation Conference, Atlanta GA

JUL 2006 Nagpal, S. | **Integration of photovoltaics in building envelope: Effect on building energy performance** | International Solar Energy Congress, Denver CO

NOV 2005 Carrol, D., Nagpal, S. | **Evaluating the efficiency of a ventilated photovoltaic skylight** | Passive and Low Energy Architecture, Beirut, Lebanon

AUG 2005 Nagpal, S., Shah, S. | **Effect of photovoltaic cover on urban surface energy balance** | Solar World Congress, Orlando, FL

NON-REFEREED CONFERENCE PRESENTATIONS

SEP 2014 **Operational parameters in laboratory HVAC system selection**
I2SL Annual Conference, Orlando FL

JAN 2010 **Energy simulation in building design**
ISHRAE Acreconf, New Delhi, India

JAN 2006 **Role of photovoltaics in urban heat island mitigation**
Electric Utilities and Environment Conference, Tucson AZ

TEACHING

TEACHING ASSISTANT | Massachusetts Institute of Technology, Cambridge MA

FALL 2017 Environmental Technologies in Buildings

VISITING FACULTY | CEPT University, Ahmedabad, India

WINTER 2015 When Buildings Converse with Climate

INTERNAL LECTURE SERIES | Atelier Ten, New York NY

SUMMER 2014 High Performance Mechanical Systems

ADJUNCT FACULTY | Institute of Environmental Architecture, Mumbai, India

FALL 2012 Thermal Comfort and Passive Design II

SPRING 2012 Sustainable Building Design Principles II

SPRING 2012 Thermal Comfort and Passive Design I

FALL 2011 Sustainable Building Design Principles I

SPRING 2011 Sustainable Building Technology

SPRING 2011 Energy Efficient Building Design

FALL 2010 Green Buildings: Technical Criteria & Standards

SPRING 2010 Green Building Rating Systems

VISITING FACULTY | Academy of Architecture, Mumbai, India

FALL 2010 Undergraduate Elective: Energy Efficient Building Design

GRADUATE DISSERTATION GUIDE | YCMOU University, Mumbai, India

SPRING 2012 **Priyanka Patil** | Daylighting in municipal buildings

SPRING 2011 **Sagar Sanghvi** | Influence of sky courts on thermal performance of office buildings

SPRING 2010 **Milind Shidunkar** | Comparative analysis of appropriately designed shading devices

SPRING 2010 **Sweta Gandhi** | Design of solar passive envelope for a commercial office building

SPRING 2010 **Avantika Katdhar** | Study of natural ventilation for midrise residential structures

INVITED TALKS

JUN 2018 **Modeling approaches for establishing energy reduction targets for a university campus**
ASHRAE Annual Conference, Houston, TX

MAR 2018 **Advanced mechanical systems**
University of Pennsylvania, Philadelphia PA

MAR 2018 **District energy systems**
Massachusetts Institute of Technology, Cambridge MA

NOV 2017 **Large building HVAC systems**
Massachusetts Institute of Technology, Cambridge MA

DEC 2015 **High performance building design**
CEPT University, Ahmedabad, India

FEB 2014 **Data discovery & visualization**
IBPSA Event, New York NY

MAR 2012 **High performance building design**
NMIMS University, Mumbai, India

OCT 2010 **Building performance analysis as a design tool**
Think Green Conference, Mumbai, India

JUN 2010 **Zero energy homes**
Asia Pacific Partnership on Clean Development, Ahmedabad, India

OCT 2009 **Introduction to building simulation**
National Seminar on Energy Efficient Design, New Delhi and Mumbai, India

AUG 2009 **Use of computer simulation in building design**
PHD Chamber of Commerce, New Delhi, India

SEP 2009 **High performance building envelopes**
Institute of Environmental Architecture, Mumbai, India

NOV 2007 **Sustainability for existing buildings & commercial interiors**
Syska Hennessy Group, New York NY

NOV 2006 **High performance design for today & tomorrow**
Syska Hennessy Group, New York NY

SERVICE

SCIENTIFIC COMMITTEES SERVED

NOV 2018 - MAR 2019 **Building Simulation World Conference**
International Building Performance Simulation Association

NOV 2018 – MAR 2019 **The Symposium for Simulation for Architecture and Urban Design**
The Society for Modeling & Simulation International

NOV 2017 – MAR 2018 **Building Performance Analysis Conference and SimBuild**
ASHRAE and IBPSA-USA

NOV 2017 – MAR 2018 **The Symposium for Simulation for Architecture and Urban Design**
The Society for Modeling & Simulation International

NOV 2016 - MAR 2017 **Building Simulation World Conference**
International Building Performance Simulation Association

PROFESSIONAL COMMITTEES SERVED

NOV 2016 - MAR 2017 **Committee on the Environment**
American Institute of Architects New York

AWARDS AND GRANTS

AUG 2017 **Travel Grant | Building Simulation World Conference, San Francisco, CA**
MIT Department of Architecture Avalon Conference Travel

MAY 2010 **First Prize | Housing for All – National Design Ideas Competition**
Maharashtra Chamber of Housing Industry, Mumbai, India

AUG 2005 **Travel Grant | ISES Solar World Congress, Orlando, FL**
Society for Building Science Educators

NOV 2004 **Travel Grant | Greenbuild International Conference, Portland, OR**
United States Green Building Council

DEC 2000 **First Prize | Affordable Housing - National Student Design Competition**
HUDCO Design Trophy, National Association of Students of Architecture, Bangalore, India

CERTIFICATE COURSES

MAR 2007 **HVAC Systems Design** | New York University School of Professional Studies, New York

AUG 2006 **Introduction to Computational Fluid Dynamics** | ANSYS Fluent, New York, NY

MAR 2004 **Towards Sustainable Habitats** | Centre for Scientific Research, Auroville, India

FEB 2004 **Green Building Design** | Confederation of Indian Industry, Hyderabad, India

NOV 2002 **Energy Efficient Windows and Building Design** | NFRC, New Delhi, India

COMPUTER PROFICIENCY

CAD | Autocad, Sketchup, Rhinoceros, ArchGIS

Building Performance Analysis | eQUEST, IES-VE, Energy Plus, Diva/Archsim, UMI

Programming | Grasshopper for Rhino, C#

Graphics and Word Processing | Adobe Creative Suite, Microsoft Office

REFERENCES

Christoph Reinhart | Professor of Building Technology, MIT, Cambridge MA

Julie Paquette | Director of Energy Management, Yale University, New Haven CT

Nico Kienzl | Director, Atelier Ten, New York NY

Robert Bolin | Senior Principal, Syska Hennessy Group, San Francisco CA

Chris Piche | Regional Director - East, Integral Group, Oakland CA