

Mandi Pretorius

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Yale Center for Ecosystems + Architecture
Yale University
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RESEARCH INTERESTS

Household Water-Energy Security, Building-integrated Water Capture, Treatment, Distribution & Reclamation, Solar Water Disinfection | Renewable & Abundant Earth Materials | Built Environment Biodiversity & Biocompatibility | Building Ecosystems | Health & Well-being | Environmental Psychology & Eco-aesthetics, Embodied Phenomenology

CERTIFICATION

Architect Registered Professional, The South African Council for the Architectural Profession (SACAP)

EDUCATION

Ph.D. Architectural Sciences, Yale School of Architecture, Yale University, Expected December 2024
Dissertation Title: "Reimagining Built Ecologies through the Medium of Water: Inquiry through design methodology into the potential relationships between solar-water processes and adaptive building enclosures," Advisor: Anna Dyson

M.Phil. Yale School of Architecture, Yale University, 2021

M.Sc. Master of Science in Architectural Sciences, Center for Architecture Science & Ecology (CASE), Rensselaer Polytechnic Institute, 2017
Thesis Title: "Towards Built Ecologies: A Consideration of Multi-systemic Bioresponsive Behaviors within Architectural Systems," Advisor: Anna Dyson

M.Arch. Masters in Architecture (Professional); Graduated with Distinction, University of Cape Town, 2011

BAS Bachelor of Architectural Studies; Graduated with Distinction, University of Cape Town, 2008

CONFERENCE PRESENTATIONS, EXHIBITION & DEMONSTRATION

2023 UIA Global Student Summit, World Congress of Architects, Copenhagen
Selected Exhibitor and Presentation
Presentation: Farming Secure Water: Edible Plants and Aquaculture for Water Sorption, Water Disinfection, Air Purification, and Building Materials

2022 NSF Nanosystems ERC Nanotechnology Enabled Water Treatment (NEWT) Annual Meeting
Poster Presentation to NEWT Industry and Academic Partners
Pretorius, M., Jeon, I., Wu, X., Wubhayavedantapuram, R., Novelli, N., Sinha, S., Anna Dyson* & Jaehong Kim* (PI). Multifunctional Building-Integrated Systems for Solar Water Disinfection, Water Heating, Building Thermoregulation and Daylighting

2022 UPenn Ph.D. Conference in Architecture on Precarity Conference Presentation
Pretorius, M., (2022) Questioning the Constructed Intangibilities of Water Resources in the Urban Domestic. Weitzman School of Design, University of Pennsylvania

2021 NSF Nanosystems ERC Nanotechnology Enabled Water Treatment (NEWT) Annual Meeting Poster Presentation to NEWT Industry and Academic Partners

- Pretorius, M., Jeon, I., Wu, X., Wubhayavedantapuram, R., Novelli, N., Sinha, S., Anna Dyson* & Jaehong Kim* (PI). Multifunctional Building-Integrated Systems for Solar Water Disinfection
- 2021 U.S Environmental Protection Agency (EPA) P3 Student Expo Poster Presentation
Pretorius, M., Jeon, I., Wu, X., Ryberg., E, Novelli, N., Anna Dyson* & Jaehong Kim* (PI). Solar Window for Water Collection and Purification. Youtube: https://youtu.be/Z7xz5wk_EJ8
- 2020 Research Symposium – Inquiry in Building Performance Invited Speaker
Presentation: Research Methodologies in Reimagining Built Ecologies through the Medium of Water, High Performance Building Lab, Georgia Tech
- 2019 IEEE Games Entertainment & Media Paper Presentation
Pretorius, M., Mankiewicz. P., Aly-Etman, M., Novelli, N. & Dyson, A. (2019) Exploring visual and non-visual 'biophilic' impacts on human health using experimental methods in simulated abiotic and biotic environments. Immersive Visualization Track. Center for Collaborative Arts and Media, Yale University. <https://ieeegem.space/media>
- 2019 UN Environment 4th Assembly (UNEA-4) Nairobi, Kenya Public Demonstration
Ecological Living Network and demonstration of the Solar Enclosure for Water Reuse (SEWR) Building-integrated Dye-Enhanced Solar Water Disinfection, including demonstration of a functional research prototype.
SEWR Cohort: Anna Dyson, Jaehong Kim, Nick Novelli, Eric Ryberg, Mandi Pretorius
- 2018 United Nations General Assembly Public Demonstration
Ecological Living Module, Yale Center for Ecosystems + Architecture & Gray Organischi Architects, UNHQ, New York

PUBLISHED WORK

- PEER REVIEW Pretorius, M., (2023). Questioning the Constructed Intangibilities of Water Resources within the Modern Household. Enquiry, The ARCC Journal for Architectural Research. Editor: Philip D. Plowright, Guest Editor: Franca Trubiano (Forthcoming)

GRANTS AND FELLOWSHIPS

- 2022-2023 MacMillan International Dissertation Research Fellowship, The Whitney and Betty MacMillan Center for International and Area Studies
- 2021 John F Enders Summer Research Grant, Yale University
- 2020-2022 National Science Foundation (NSF) Nanosystems Engineering Research Center for Nanotechnology Enabled Water Treatment (NEWTEC) Project 2.8 Seed Funding: Solar Disinfection Window
- 2020-2021 The United States Environmental Protection Agency (US EPA) P3 Student Project Grant
- 2019-2022 Autodesk Boston Technology Center Residency Program
- 2018-2024 Scholarship, Ph.D. Architecture, Yale University
- 2016-2018 Scholarship, MSc Architectural Sciences, Rensselaer Polytechnic Institute
- 2010 Manuel & Luby Washkansky Scholarship, University of Cape Town

AWARDS

- 2016 South African Institute of Architects, SAIA Award 2016 Award of Excellence | New Residence, Brommersvlei Road

2016	Cape Institute of Architects; Award of Merit New Residence, 79 Brommersvlei Road
2011	South African Council for the Architectural Profession; University of Cape Town Best Architectural Student Award over 6 years of study
2011	Cape Institute of Architects; The Best Student Graduating in the Postgraduate Architecture Degree Program
2011	South African Institute of Architects; Best Student based on final two years of study for a professional degree in Architecture
2011	Reuben Stubbs Award, University of Cape Town

TEACHING EXPERIENCE

2022	Teaching Fellow, ARCH 2018 Fall, <i>Advanced Building Envelopes</i> , M.Arch I Required Course, Yale University, Taught by Anna Dyson
2021	Teaching Fellow, ARCH 2021 Fall, <i>Environmental Design</i> , M.Arch I Required Course, Yale University, Taught by Anna Dyson
2021	Teaching Fellow, ARCH 3297 Spring, <i>From Shigeru Ban to Ikea</i> , Elective Course, Yale University, Taught by Esther da Costa Meyer
2020	Teaching Fellow, ARCH 2018 Fall, <i>Advanced Building Envelopes</i> , M.Arch I Required Course, Yale University, Taught by Anna Dyson
2020	Teaching Fellow, UMB 2022 Spring, <i>Systems Integration</i> , M.Arch I Required Course, Yale University, Taught by Martin Finio
2019	Teaching Fellow, ARCH 2018 Fall, <i>Advanced Building Envelopes</i> , M.Arch I Required Course, Yale University, Taught by Anna Dyson

PROFESSIONAL EXPERIENCE

2012–2015	Design Architect / Project Architect, Metropolis Design CC, Cape Town Performed in the capacity of Design Architect and Project Architect on a range of projects. Projects range from high-end residential design to the concept design & development of retail & commercial fit-outs. Select projects that required custom furniture design for manufacture.
2009	Intern Architect, Urban Initiatives, London Project emphasis on masterplan proposals at city & district scale, modeling of housing typologies & site surveying/data collection. Proposals were limited to towns & cities in UK & Ireland.
2008	Intern Architect, PJ Carew Consulting, Cape Town Project emphasis on passive/ low energy solutions for buildings Internship role included modeling of proposed passive building systems and design of infographics as part of client correspondence.

SERVICE

Peer reviewer, Association of Collegiate Schools of Architecture
Peer reviewer, World Sustainable Built Environment Conference 2024
Volunteer, Yale Pathways to Science

OTHER

LANGUAGES	English, Afrikaans
SOFTWARE	BIM Autodesk CAD, Autodesk Revit, Rhinoceros, Grasshopper Optics Lambda LightTools, Synopsys Tracepro, LBNL Optics7, LBNL WINDOW Office Adobe Suite, Microsoft Suite