



**Javeriya Hasan, M.BSc., M.Sc., B.Eng. (Hons.), Ph.D.,
P.Eng., PMP**

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EXPERT SUMMARY

Ms. Javeriya Hasan is an Associate with the Civil & Structural Engineering and Building Science & Building Envelope teams at 30 Forensic Engineering. She holds both a Master of Building Science and Ph.D. in Building Science from Toronto Metropolitan University, and her background spans the thematic areas of building science, building envelope assessments, civil and structural engineering. Her experience lies in the areas of sustainability and built environment, with an emphasis on building energy efficiency, building performance, and resilience. Ms. Hasan is a licensed Professional Engineer in the province of Ontario.

SPECIALIZED PROFESSIONAL COMPETENCIES

- Civil Engineering – Structures and Building Science
- Building Conditions Assessment
- Building Enclosure Failure Analysis
- Building Science
- Project Management
- Research and Analysis
- Teaching and Training

ACADEMIC BACKGROUND

Ph.D. in Building Science, Toronto Metropolitan University, Toronto, Ontario, 2019 – 2024

Master of Building Science (M.BSc.), Toronto Metropolitan University, Toronto, Ontario, 2018 – 2019

M.BSc. Dissertation: An Investigation on the Critical Degree of Saturation of Half brick Samples via the Frost Dilatometry Methodology

Master of Science (MSc.) in Structural Steel Design and Sustainable Development, Imperial College London, London, 2009 – 2010

Bachelor of Engineering (B.Eng.) in Civil Engineering (Honours), University of Nottingham, Nottingham, Nottinghamshire, 2005-2008



GRADUATE LEVEL COURSES

- BL8100 Building Science Theory
- BL8101 Building Envelope Systems
- BL8102 Ecological and Resource Efficient Design
- BL8203 Health, Comfort, and Indoor Environment
- BL8207 Building Performance Assessment
- BL8104 Building Design Seminar/Studio
- BL8103 Energy Efficient Building Services
- ME8114 Energy Management
- ME8140 Simulation Theory and Methodology

ADDITIONAL COURSES

- Tech Stewardship Practice Program, 2023
- GradLeaders Program, 2023
- Graduate Teaching Development Program: Levels 1 & 2 and Instructional Skills Workshop, 2021
- Leed Green Associate, 2023
- Certified Passive House Consultant, 2020

PROFESSIONAL EXPERIENCE

30 Forensic Engineering

Associate, Civil & Structural Engineering, Building Science & Building Envelope
2023 – Present, Toronto, ON

- Building Systems and Structural Failure Analysis (including residential, commercial, institutional, and industrial occupancies)
- Building Science Investigations

Toronto Metropolitan University

Instructor, Existing Building Forensics
2023 – Present

Graduate Teaching Assistant
2019 – 2023, Toronto, ON

- Graduate Assistant for the undergraduate courses: ASC302 - Envelope Systems, ASC 200 Sustainable Practices, ASC 303 – Structures II, ASC 402 – Bodily Comfort Systems, and ASC 203 – Structures II.
- Involved in invigilation, grading tests/exams, and addressing students' queries.
- Prepared test and exam questions.



- Guest lectured on specialized topics.

First-Year Engineering Transition Support Facilitator
2022, Toronto, ON

- Developed content for the First-Year Engineering website.
- Developed content for the engineering week campaigns and parents' information page.
- Helped organize orientation events at Toronto Metropolitan University.

Toronto 2030 District

Research Assistant
2022, Toronto, ON

- Involved in the Building Mounted Solar Project that forms part of the Toronto 2030 District Project. Responsible for supporting the research team's evaluation of the question: *Do building mounted solar PV panels offer an advantage over centrally generated power?*
- Carried out the general solar potential assessment of building roofs and facades in the district.
- Researched different solar technologies, capital, and operating cost guidelines for the different technologies.
- Compared onsite power generation and buying power from the grid and determined the impact of incentives for the installation of distributed solar.

PROFESSIONAL SOCIETIES AND ASSOCIATIONS

- Professional Engineers Ontario (PEO), Member
- Ontario Society of Professional Engineers (OSPE), Member
- Building Science Association of Ontario, Member
- International Institute of Building Enclosure Consultants (IIBEC), Member
- Women in Restoration & Engineering, Member
- Association of Energy Engineers GTA, Member
- Passive House Institute US, Inc. (PHIUS)

VOLUNTEER/COMMITTEE PARTICIPATION

- Association of Energy Engineers GTA, Awards Director
- Sustainable Buildings Canada, Volunteer
- Emerging Green Professionals (EGP), Mentor
- Professional Engineers Ontario (PEO) Mississauga Chapter, Volunteer



AWARDS AND ACHIEVEMENTS

- Building Science Alumni Research Award, Department of Architectural Science, Toronto Metropolitan University, November 2024
- FEAS Fall 2024 Gold Medal award, Toronto Metropolitan University, October 2024
- Team won first prize in the Sustainable Buildings Competition (SBC) organized by the Sustainable Buildings Network (SBN), University of Toronto, February 2023
- Participant in the 3MT Competition, March 2023
- Ontario Graduate Scholarship, Toronto Metropolitan University, 2021-2023
- Queen Elizabeth II Graduate Scholarship in Science and Technology (QEII-GSST), Toronto Metropolitan University, 2019 – 2021

PUBLICATIONS

Publications and Conference Proceedings

- Hasan, J. and Bjornson, D. (2026). Forensic Insights into Durability Failures in Building Enclosures. To be published in the conference proceedings of the 17th International Conference on Durability of Building Materials and Components, Montreal, Canada.
- Hemphill, R. and Hasan, J. (2026). Calling for Building Code Changes for Low-Slope Roof Drainage. (2026). To be published in the conference proceedings of the IIBEC Tradeshow in Sacramento, California.
- Hasan, J., Doshi, H., Reitsma, J., & Tam, C. (2025). Building Enclosure Forensics and the Need for a Site Communications Strategy. IIBEC Building Enclosure Symposium (BES), St. Louis, Missouri.
- Bjornson, D. and Hasan, J. (2025). Forensic Insights into Roof Failures. IIBEC Convention and Tradeshow, Orlando, Florida.
- Udisi, B., Gorgolewski, M., Horvat, M., Hasan, J., Li, Y., Rahimi, S. (2024). Building Envelope Degradation and its Impact on Energy Consumption and GHG Emissions (IBPC 2024).
- Hasan, J., & Horvat, M. (2023). Spatial parameters and methodological approaches in solar potential assessment - State-of-the-art. *Renewable and Sustainable Energy Reviews*, 188, 113857. <https://doi.org/10.1016/j.rser.2023.113857>
- Hasan, J., Zheng, E., & Horvat, M. (2023). A least squares regression-based approach in the investigation of the influence of density metrics of 14 distinct Toronto neighbourhoods on the roof and facade solar potential. September. <https://doi.org/10.3389/fbuil.2023.1248259>
- Hasan, J., Horvat, M., 2023. A novel application of the Random Forest algorithm for predicting Solar Envelope density under varying spatial-temporal contexts. *Journal of Building Engineering* (under review in Journal of Building Engineering)
- Hasan, J., Fung, A. and M. Horvat, (2021), A comparative evaluation on the case for the implementation of building integrated photovoltaic/thermal (BIPV/T) air-based systems on a typical mid-rise commercial building in Canadian cities, *Journal of Building Engineering*, Vol. 44, December 2021, <https://doi.org/10.1016/j.job.2021.103325>
- Hasan, J., Richman, R. and Horvat, M. (2021), Application of traditional frost dilatometry methodology on half brick samples to identify the critical degree of saturation, *Construction and Building Materials*, Vol. 313, December 2021, <https://doi.org/10.1016/j.conbuildmat.2021.125350>



- Hasan, J., & Horvat, M. (2023b). "An Investigation on the Influence of Neighbourhood Morphology on Outdoor Thermal Comfort in Toronto's Public Spaces BT." Proceedings of the 5th International Conference on Building Energy and Environment (L. L. Wang, H. Ge, Z. J. Zhai, D. Qi, M. Ouf, C. Sun, & D. Wang (eds.); pp. 2825–2834). Springer Nature Singapore.
- Hasan, J., Horvat, M., Riddell, C., and Wang, R. (2021). "The impact of roof morphology on solar potential: making Toronto suburbs solar ready." CISBAT 2021: Carbon Neutral Cities - Energy Efficiency & Renewables in the Digital Era, EPFL, 8-10 September 2021, Lausanne, Switzerland.
<https://iopscience.iop.org/article/10.1088/1742-6596/2042/1/012101/pdf>
- Hasan, J., Saunders, K. and Horvat, M. (2020). "The application of Solar Envelope Zoning for the enhancement of solar access in a densely populated neighbourhood in Toronto." EuroSun 2020 Conference, September 1-3, 2020, Athens, Greece, Proceedings:
<http://proceedings.ises.org/paper/eurosun2020/eurosun2020-0005-Hasan.pdf>
- Hasan, J. & Fung, A. S. (2020). "Building Integrated Photovoltaic / Thermal (BIPV/T) (Air Based) System and its Potential in Building Facades Application in Toronto, Canada." eSim 2021 Conference, June 14 – 16, 2021, Vancouver, Canada.

Reports

- Article titled, "Sealing the Gaps: Preventing Window-Wall Water Woes." published in the Spring 2025 "Pushing the Envelope Canada" magazine of the Building Science Association of Ontario.
<https://flip.matrixgroupinc.net/obcb/2025/spring/#page=23>
- Contributed to two sections titled, "Building Mounted Solar" and "Behind the Meter Storage" in 'Integrated Pathways to Decarbonization' report for the Toronto 2030 District. Reference: Toronto 2030 District. (2022). Integrated Pathways to Decarbonization.
<https://www.2030districts.org/toronto/aboutconferences/>

SPEAKING ENGAGEMENTS

- "Building Enclosure Forensics and the Need for a Site Communications Strategy" at the IIBEC Building Enclosure Symposium, St. Louis, Missouri, October 26 - 28, 2025.
- "From Clues to Clarity: Decoding Building Envelope Failures" at Sustainable Buildings Canada's Better Buildings Boot Camp, Toronto, Ontario, July 11, 2025.
- "Forensic Insights into Roof Failures" at the IIBEC Convention & Tradeshow, Orlando, Florida, March 6 – 10, 2025.
- "An Investigation of the Impact of Building Envelope Performance Degradation on Energy Consumption" to a gathering of academics and researchers at the International Building Physics Conference organized by Toronto Metropolitan University, Toronto, Canada (July 2024).
- Guest Lecturer on the topic of "Solar Buildings – Solar Energy and Architecture" (2021 – 2023) in the first-year undergraduate course in "Sustainable Practices" at the Department of Architectural Science, Toronto Metropolitan University.
- "A least squares regression-based approach in the investigation of the influence of 14 distinct Toronto neighbourhoods on the roof and façade solar potential," as part of Sub-task D to a gathering of IEA SHC Task 63 – Solar Neighbourhood Planning members at the University of Padua, Padua, Italy, September 2023.
- "The Application of Machine Learning to the Design of Solar-Centric Neighbourhoods" to a gathering of academics, researchers, and industry professionals in the IEA SHC Task 63 – Solar Neighbourhood



Planning seminar organized by the Norwegian University of Science and Technology in Trondheim, Norway, March 2023.

- “An Investigation on the influence of neighbourhood morphology on outdoor thermal comfort in Toronto’s public spaces’ at the COBEE 2022 conference organized by Concordia University, Montreal, Canada, July 2022.
- “The impact of roof morphology on solar potential: making Toronto suburbs solar ready” at the CISBAT 2021 conference – International Scientific Conference on Carbon Neutral Cities – Energy Efficiency & Renewables in the Digital Era, Lausanne, Switzerland, September 2021.
- “Building Integrated Photovoltaic Thermal (BIPV/T) (Air Based) System and its Potential in Building Facades in Toronto, Canada” at the eSim2020 organized by the University of British Columbia, June 2021.
- “The Application of Solar Envelope Zoning for the Enhancement of Solar Access in a Densely Populated Neighbourhood in Toronto” at EuroSun 2020, the 13th International Conference on Solar Energy for Buildings & Industry, Athens, Greece, September 2020.