

ZEYNEP SENA KARKAS

EDUCATION

Master programme in Environmental Control and Construction Technology July 2020
Istanbul Technical University
Graduation: High Honours Student
GPA: 3.75/4.0

Dissertation title: "Investigation of conservation studies in masonry building materials used on the facades of historical buildings and a systematic method proposal"

Advisor: Professor Seden Acun Ozgunler

Committee: Prof.Dr.Seden Acun Ozgunler, Assoc.Prof.Dr.Fatih Yazicioglu, Assoc.Prof.Dr.Sibel Onat Hattap

Bachelor of Science in Architecture June 2016
Fatih Sultan Mehmet Vakif University
Architecture (Full scholarship) (Based on university entrance exam score)
Graduation: Honours Student
GPA: 3.26/4.0

RESEARCH INTERESTS

- Conservation and Protection of Cultural Heritage
- Historic Construction Materials and Traditional Techniques
- Building Materials Science and Durability Assessment
- Sustainable and Eco-efficient Materials for Restoration
- AI and Digital Technologies in Heritage Preservation

PUBLICATIONS

Peer-Reviewed Journal Articles

Acun Özgünler, S. & Karkas, Z. S. (2024). **An Experimental Study Conducted to Determine the Effectiveness and Durability of Preservation Treatments on Volcanic Tuff Stones**. *International Journal of Conservation Science*, 15(3), 1165-1188. <https://doi.org/10.36868/IJCS.2024.03.02> (Web of Science – ESCI & SCOPUS, DOAJ (Directory of Open Access Journals), EBSCO & Chemical Abstracts Index)

Karkas, Z. S., & Acun Özgünler, S. (2022). **Koruma Kararlarını Etkileyen Parametrelerin Belirlenmesine Yönelik Bir Anket Çalışması (A Survey About the Determination of Essential Parameters of Surface Treatment Application Decisions)**. *Journal of Architectural Sciences and Applications*, 7(1), 364-382. <https://doi.org/10.30785/mbud.1090550> (TR Index, Art Index (Art Research Database, EBSCO))

Karkas, Z. S., & Acun Özgünler, S. (2021). **Tarihi Yapılarda Kagir Yapı Malzemelerinin Koruma Uygulamalarında Kullanılabilecek Bir Yöntem Önerisi (A Method Suggestion That Can Be Used in Conservation of Masonry Materials in Historical Buildings)**. *Süleyman Demirel Üniversitesi Fen Bilimleri Enstitüsü Dergisi*, 25(3), 564-577. <https://doi.org/10.19113/sdufenbed.884228> (TR Index, Art Index (Art Research Database, EBSCO))

CONFERENCE PRESENTATIONS

Oral Presentations

Karkaş, Z. S., Acun Özgünler, S., & Alhan, E. T. (2025, May). **Customized Kutahya Pozzolan and Metakaolin-Based Geopolymers for Stone Conservation: Initial Findings on Mechanical Properties**. 4th International Civil Engineering & Architecture Conference (ICEARC'25), Trabzon, Turkey. http://doi.org/10.31462/icearc2025_a_car_568

Karkaş, Z. S., & Acun Özgünler, S. (2022, April). **Techniques and Innovative Approaches Used in Stone Conservation Methods**. XII. International Sinan Symposium "Technology and Architecture", Trakya University, Faculty of Architecture Edirne, Turkey. *Proceedings Book* pages 379-394. <https://bys.trakya.edu.tr/file/open/37367221/>

Karkaş, Z. S., & Acun Özgünler, S. (2019, April). **Investigation of Conservation Studies on Natural Stones Used in Facades of Historical Buildings**. I. International Conservation and Restoration Students Symposium (I.ICORESS), Istanbul University, Turkey. (*Abstracts Booklet*)

BOOK CHAPTERS

Karkaş, Z. S., & Acun Özgünler, S. (2023). **Mimari Tasarım Sürecinde Doğal Taş Seçimi İçin Bir Yöntem Önerisi (A Method Proposal for the Selection of Natural Stone in the Architectural Design Process)**. *Mimaride Doğal Taş (Natural Stone in Architecture)*, pp. 17-51. Livre de Lyon, France. (ISBN: 978-2-38236-559-5)

Karkaş, Z. S., & Acun Özgünler, S. (2022). **Nanomimari ve Yapı Malzemelerinin Yüzeylerine Su İtçilik Kazandırmak için Kullanılan Nanomalzemeler (Nano-materials Used to Impart Water Repellency to the Surfaces of Nano-architecture and Building Materials)**, *Mimarlıkta Malzeme (Materials in Architecture)*, pp. 373-403, Livre de Lyon, France. (ISBN: 978-2-38236-258-7)

PROFESSIONAL WORK EXPERIENCE

Istanbul Metropolitan Municipality (IMM) 2020-2026

Department of Housing and Urban Development

Architect, Architectural Project Preparation Department

- Collaborated with construction companies on large-scale urban transformation projects in Istanbul, including residential complexes, cultural centers, and educational facilities.
- Managed all stages of architectural project preparation: from preliminary design and implementation plans to obtaining construction permits and final completion certificates for municipal properties.
- Applied modern technologies in documentation and project management, ensuring compliance with local zoning laws and architectural standards.

Istanbul Metropolitan Municipality (IMM) 2019-2020

Department of Housing and Urban Development

Architect, Architectural and Construction Legislation Department

- Developed standards, regulations, and specifications to ensure consistency in zoning practices across Istanbul's districts.
- Facilitated cooperation between municipalities on urban development and construction laws, providing technical advice and resolutions to architectural issues.
- Assisted in the digitalization of urban planning processes, integrating new technologies to streamline building code enforcement and coordination between districts.

Istanbul Metropolitan Municipality (IMM) 2017-2019

Department of Housing and Urban Development

Architect, Architectural Project Construction Supervision Department

- Regularly supervised and inspected ongoing construction projects to ensure compliance with approved plans and regulatory standards.
- Utilized digital tools (e.g., GIS, construction management software) for project monitoring and reporting, ensuring alignment with Istanbul's master zoning plans and sustainability goals.

VOLUNTEER WORK

Volunteer Architect, Damage Assessment Team – İzmir Earthquake (October 30, 2020)

- Actively participated in post-earthquake damage assessment efforts as a volunteer architect.
- Conducted structural assessments and evaluated the safety and stability of buildings in affected areas.
- Contributed to detailed reporting and recommendations for structural safety and repairs.
- Gained hands-on experience in crisis management, team coordination, and rapid field assessments.

CERTIFICATIONS AND TRAININGS

- 3D Printers: Production Principles, Applications, and Business Model Development, Istanbul Technical University, ITU Center for Excellence in Education, Mayıs, 2024.
- BIM Application Training Program, Istanbul Technical University, Continuing Education Center, 13-24 September 2021.
- Training on Thermal, Water, Acoustic, and Fire Insulation in Architectural Structures Organized by: IZODER (Thermal, Water, Acoustic, and Fire Insulation Association) and Munzur University, Department of Architecture Dates: 13th, 20th, 27th February, and 6th March 2021.
- International Istanbul Architectural Winter School, 2015. In Collaboration with Fatih Sultan Mehmet Waqf University and Universitas Islam Indonesia, 7-23 February, Istanbul.