

Master Thesis Brief Description

Thesis Title	Assessing Building Resilience to Heat Waves Using ENVI-met
Programme of Studies	MSc in Energy Engineering
Course	MEE 540 - MSc Thesis
Area of Study	Computational Building Physics – Urban Modelling
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Supervisory Committee	Dr. George Karagiorgis, Professor, Mechanical Engineering Department Dr. Byron Ioannou, Professor, Architectural Department
Semester	Fall Semester 2025
Short Description	This thesis investigates building and urban resilience to heat waves through microclimate simulations using ENVI-met software. Various architectural configurations and passive cooling strategies—such as green roofs, reflective materials, shading devices, and vegetation—are analysed under extreme temperature scenarios. Thermal comfort indicators including air temperature, mean radiant temperature, and humidity are assessed to quantify overheating risks. The study provides climate-adapted design recommendations aimed at improving thermal resilience, reducing heat stress, and supporting sustainable urban development in Mediterranean climates.