

# TWT 1: Effects of vegetation on flows in the urban environment

KIT - NTUA

TWEET-IE / Twin Wind tunnels for Energy and the Environment –  
Innovations and Excellence

HORIZON-WIDERA-2021-ACCESS-03-01 / PR# 101079125



OpeningEvent

24-26 Jan. 2023



June-July '23

2023

Feb-May '23

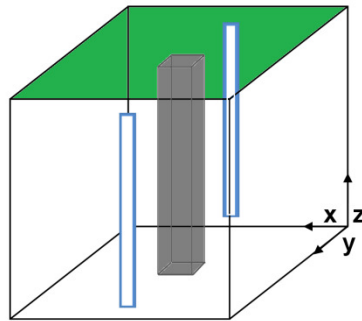
Sept '23

2025

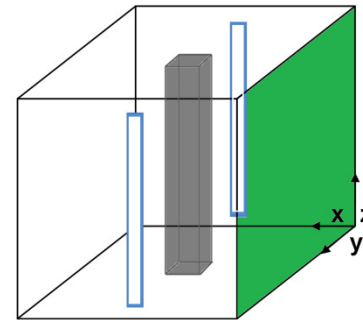


TWT 1

Other TWT's



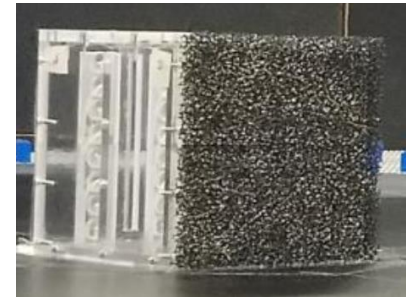
**a) Rooftop greening scenario**

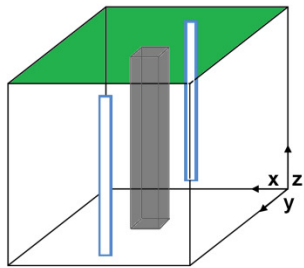


**b) Façade greening scenario.**

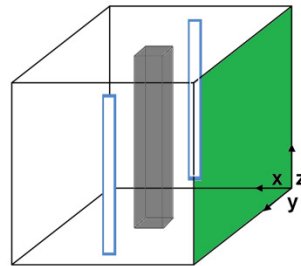
Already completed prior to TWEET-IE:

- Air exchange rate (tracer gas method)
  - Surface pressure measurements (pressure taps)
  - 7 different vegetation types
- 
- A wind tunnel study of aerodynamic effects of façade and roof greening on air exchange from a cubic building  
Vasiliki Pappa, Demetri Bouris, Wolfgang Theurer, Christof Gromke  
Building and Environment (*Accepted*)
  - Effects of Façade and Rooftop Greening on the Surface Pressure Distribution of an Isolated Cubic Building with Vertical Apertures  
Vasiliki Pappa, Asterios Bakolas, Demetri Bouris, Christof Gromke  
To be submitted to ICWE2023, the 16th ICWE International Conference on Wind Engineering





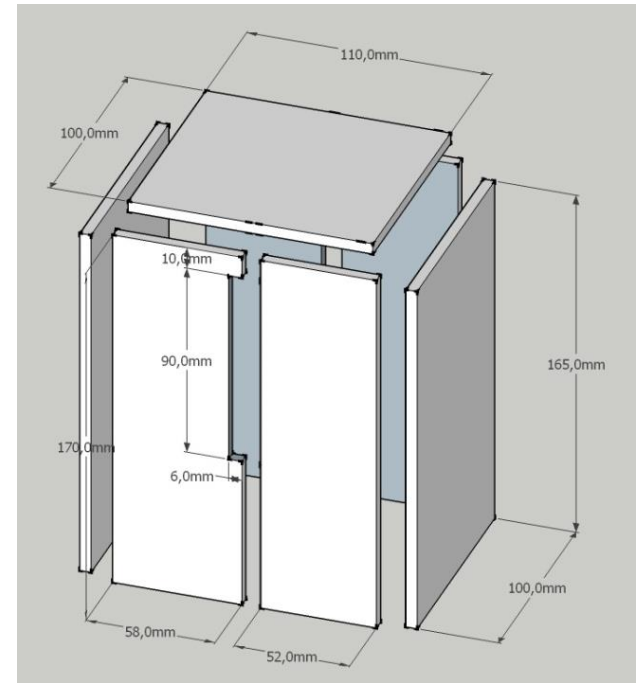
a) Rooftop greening scenario



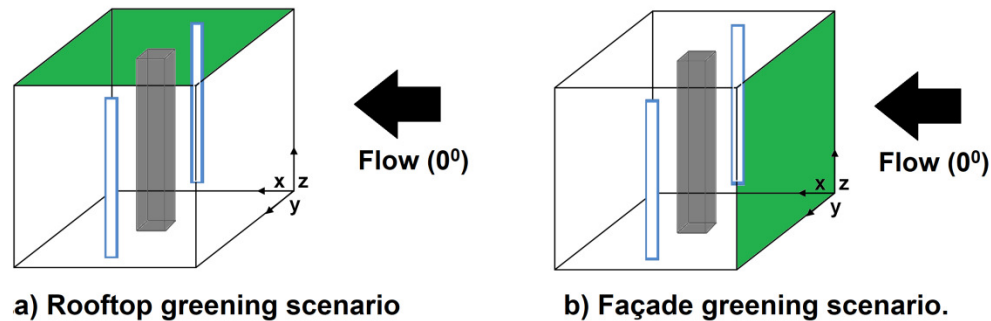
b) Façade greening scenario.

Velocity measurements to be performed

- LDV in Karlsruhe (5<sup>th</sup> Feb-10<sup>th</sup> April)
  - Rebuild model in glass ✓
  - Measure in/outside cube
  - Point measurements, high frequency
  - Complement tracer gas measurements
  - Explain effect on surface pressure



At least 1 vegetation type  
on façade and roof  
(7 ?)



Velocity measurements to be performed

- S PIV in Athens (June-July, 2023)
  - Plane measurements
  - Wider perspective of flow outside cube
  - Low frequency
  - Complement tracer gas measurements
  - Explain effect on surface pressure

At least 1 vegetation type  
on façade and roof  
(7 ?)

Thank you !