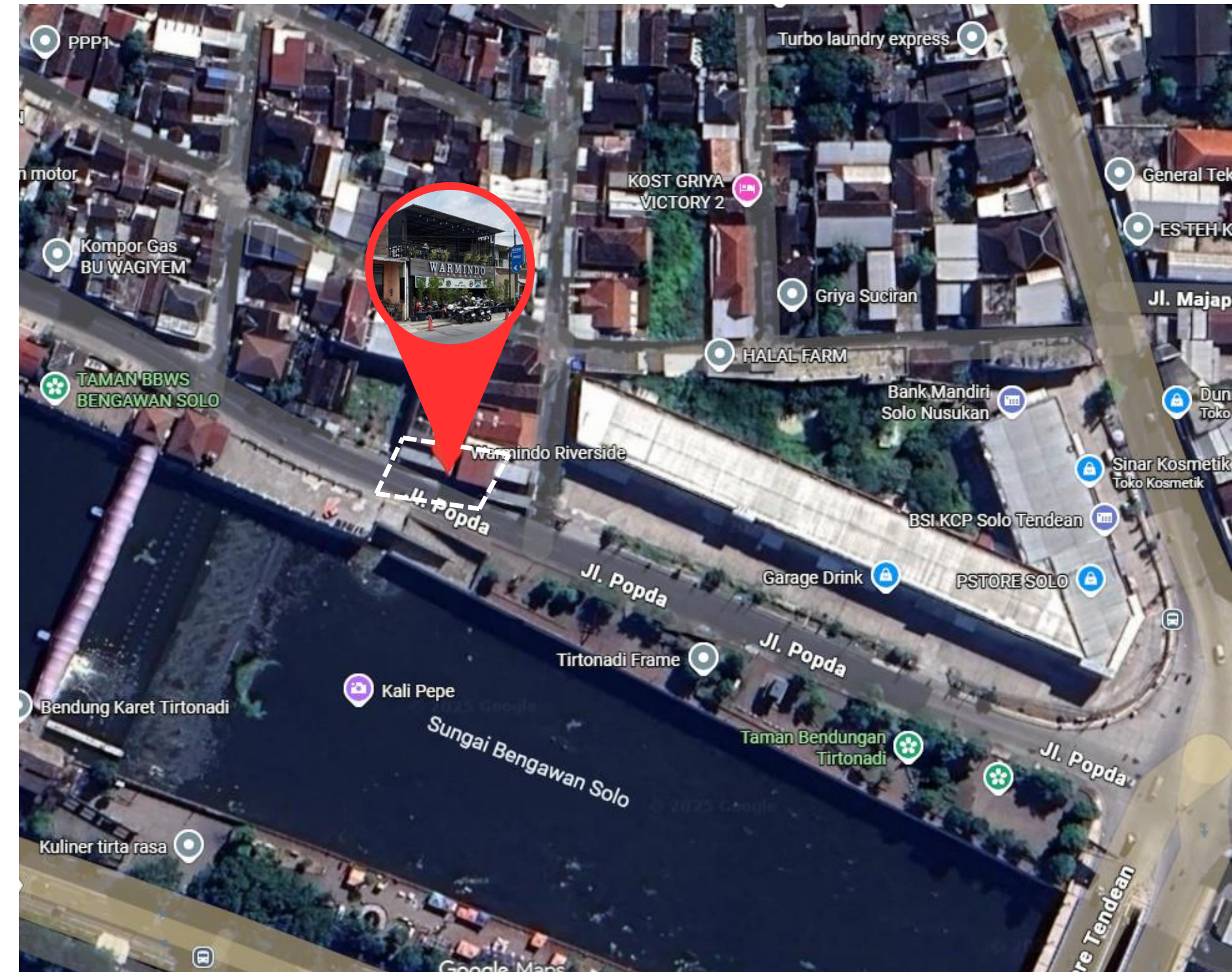


Ventilation Performance Assessment in A Semi- Outdoor Cafe



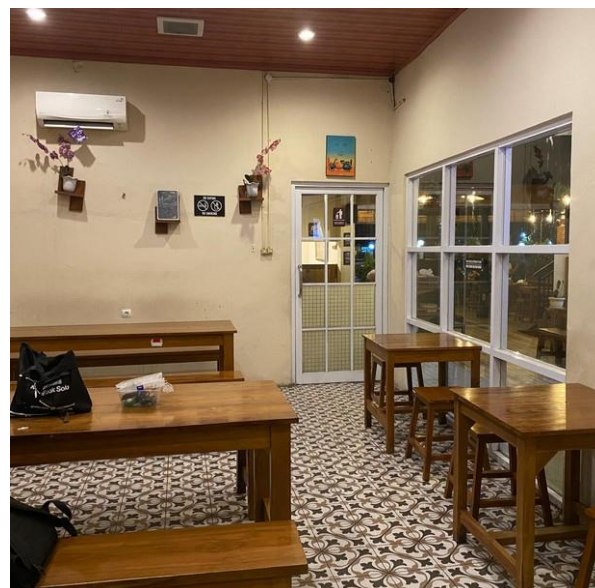
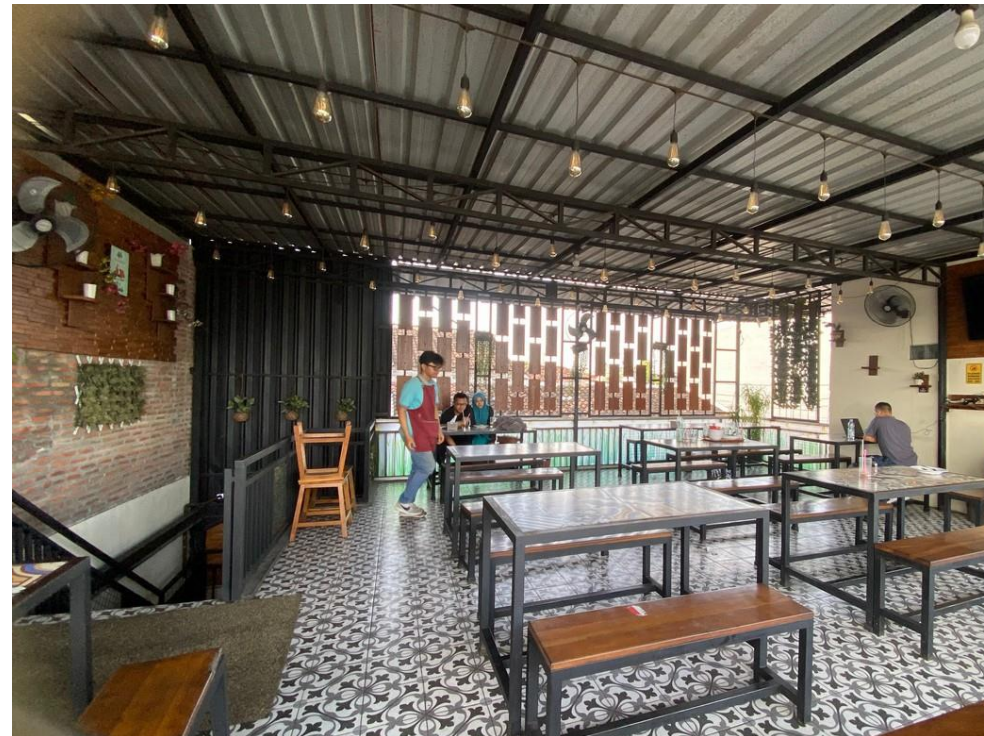
Introduction

- Warmindo Riverside Surakarta is a semi-outdoor dining space with hybrid ventilation system
- Thermal comfort is influenced by openings, occupancy, and cooking activities
- Study evaluates ventilation performance based on: temperature, humidity, and air velocity
- Measurements conducted at morning, afternoon, evening, and night
- Results aim to support improved ventilation design and spatial strategies





Building Condition



Method



- Descriptive quantitative research with field survey method
- Object: Semi-outdoor area of Warmindo Riverside Surakarta (1st & 2nd floors)
- Data collection: March 15, 2025
- Instruments: 5-in-1 Environment Meter & Heat Stress Meter
- Parameters measured: Air temperature, relative humidity, wind speed
- Measurements at 30 points, conducted at 08.00, 12.00, 16.00, and 20.00
- Data analyzed using SNI 6390:2020 thermal comfort standards
- Quantitative analysis by standard vs non-standard classification

Result and Discussion

1. Warmindo Riverside is dominated by semi-outdoor spaces

- 1st floor: indoor (AC) + semi-outdoor (natural ventilation & wall fans)
- 2nd floor: fully semi-outdoor
- Lack of shading vegetation around the building

2. Air temperature

- Average temperature > 29° C at all points
- Peak daytime temperature > 32° C
- Indicates natural ventilation is insufficient to achieve comfort

3. Relative humidity

- Consistently > 70% from morning to night
- Causes stuffy and damp conditions, reducing thermal comfort

4. Wind speed

- Generally < 0.1 m/s, especially in morning and evening
- Fans only circulate air locally, not evenly across space

Overall, the results indicate that the current hybrid ventilation design does not meet thermal comfort standards and requires improvements in opening orientation, shading elements, and fan placement.



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THANK YOU

