

# DETAILED AIR SPEED FIELDS INDUCED BY CEILING FANS

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## OBJECTIVE & METHODOLOGY

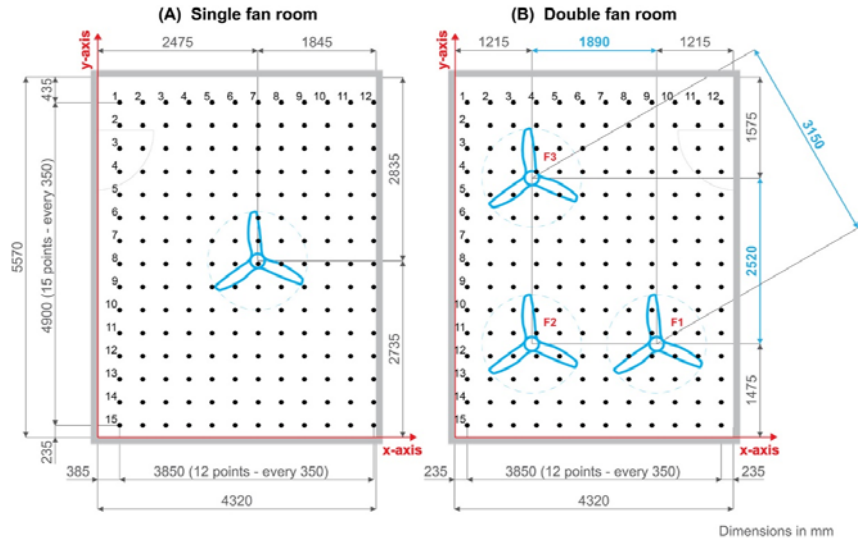
- ⊕ To investigate the impact of ceiling fans mutual interaction, rotational speed and distance on air speed fields
- ⊕ To develop detailed air speed measurements be used to validate CFD models

→ We used a measurement tree with 24 sensors to measure simultaneously at 6 locations at height of 0.1, 0.6, 1.1 and 1.7 m (total 720 points)

→ We did test for three distances between fans (1.89, 2.52, 3.15 m) and four speed set-points for each fan (turned off, low speed, medium speed and high speed). In total 22 case were defined for double fan layout. 15,840 air speed measurements were performed.

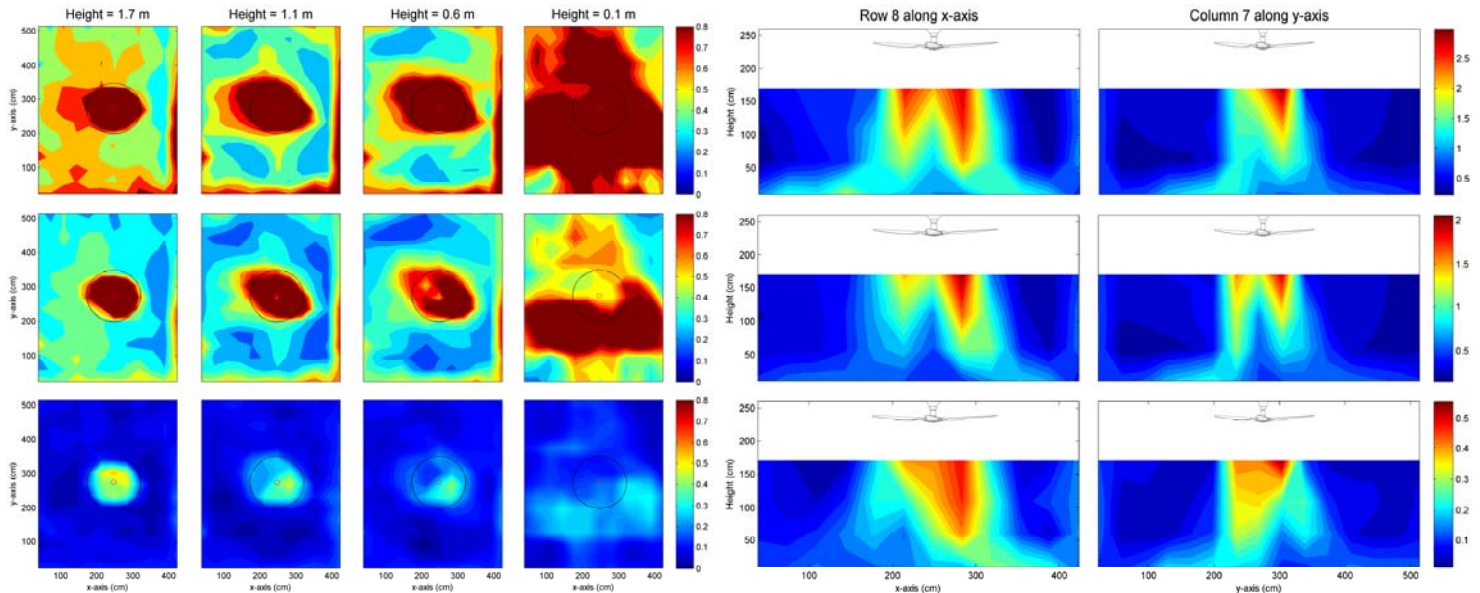


Measurement tree during tests in the double fan room



Layout of climatic chambers (4.32 x 5.57 m) during tests with measuring locations

## RESULTS



Air speed plane (horizontal, left) and section (vertical, right): high, medium and low (from top to bottom)

All results with different visualization and scales are available online:



SINGLE FAN ROOM



DOUBLE FAN ROOM

"This research project is funded by the National Research Foundation Singapore under its Campus for Research Excellence and Technological Enterprise (CREATE) programme."