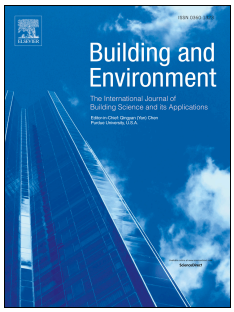
Accepted Manuscript



Fast and accurate prediction of airflow and drag force for duct ventilation using wall-modeled large-eddy simulation

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PII: S0360-1323(18)30336-6

DOI: 10.1016/j.buildenv.2018.05.064

Reference: BAE 5502

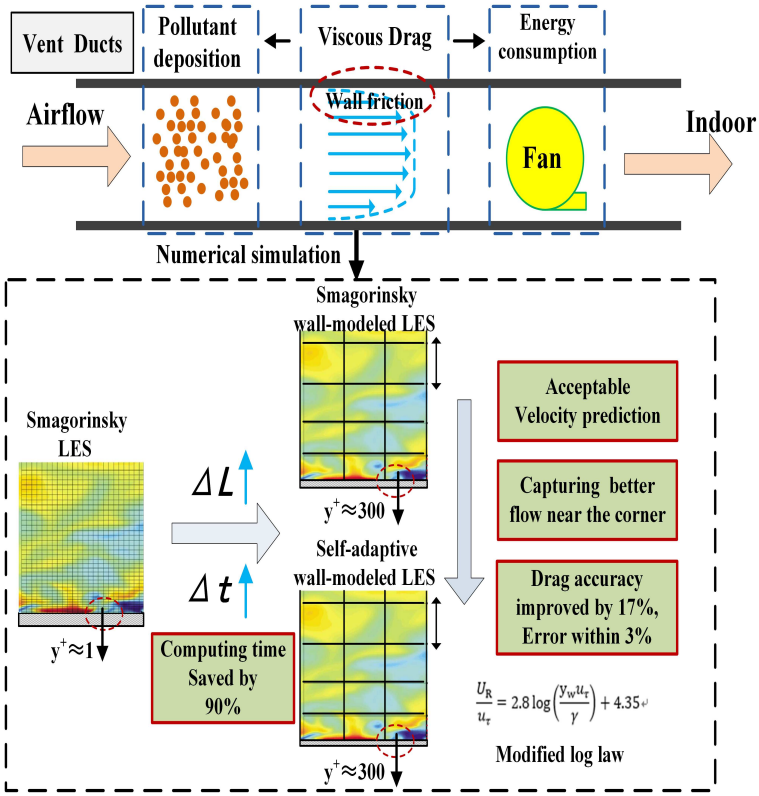
To appear in: *Building and Environment*

Received Date: 22 February 2018

Revised Date: 29 May 2018

Accepted Date: 31 May 2018

Please cite this article as: Wu P, Feng Z, Cao S-j, Fast and accurate prediction of airflow and drag force for duct ventilation using wall-modeled large-eddy simulation, *Building and Environment* (2018), doi: 10.1016/j.buildenv.2018.05.064.


Vent Ducts
Pollutant deposition
Viscous Drag
Energy consumption
Airflow
Wall friction
Fan
Indoor
Numerical simulation
Smagorinsky wall-modeled LES
Smagorinsky LES
ΔL
Δt
y+≈300
Self-adaptive wall-modeled LES
y+≈1
Computing time Saved by 90%
Acceptable Velocity prediction
Capturing better flow near the corner
Drag accuracy improved by 17%, Error within 3%
Modified log law