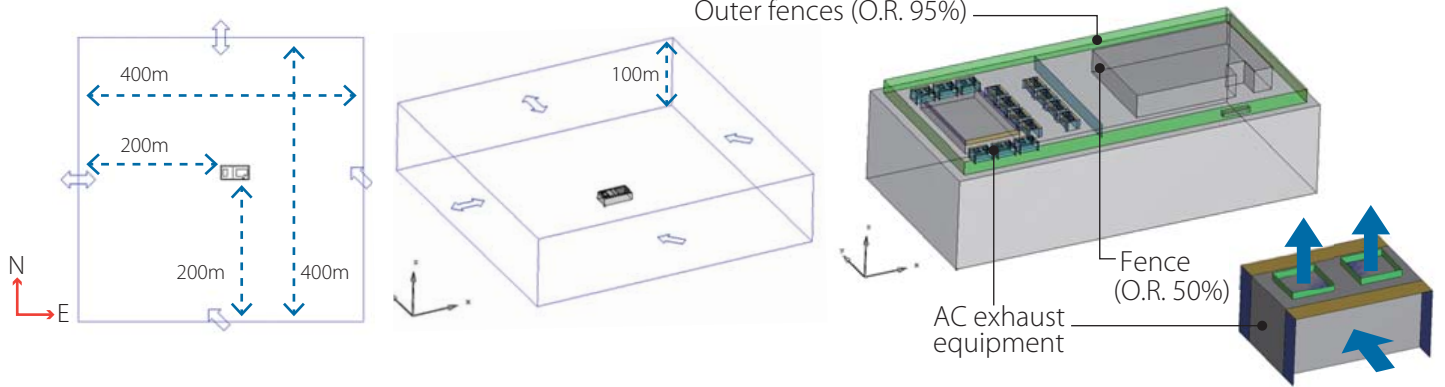


Simulation of Rooftop Air-Conditioner Exhaust

scSTREAM is used to simulate the operation of air-conditioner exhaust equipment at the rooftop of a building. Simulations are performed for different conditions to assess the effect of wind on the operation.

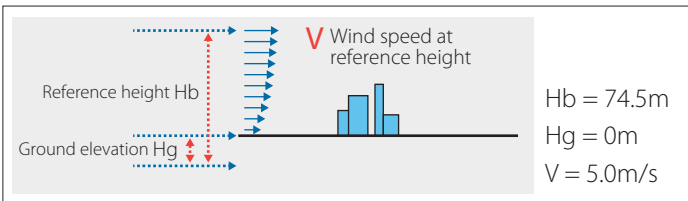
Simulation Model

40m X 20m X 10m building



Conditions

Wind conditions: SE or SW wind at 30deg.C



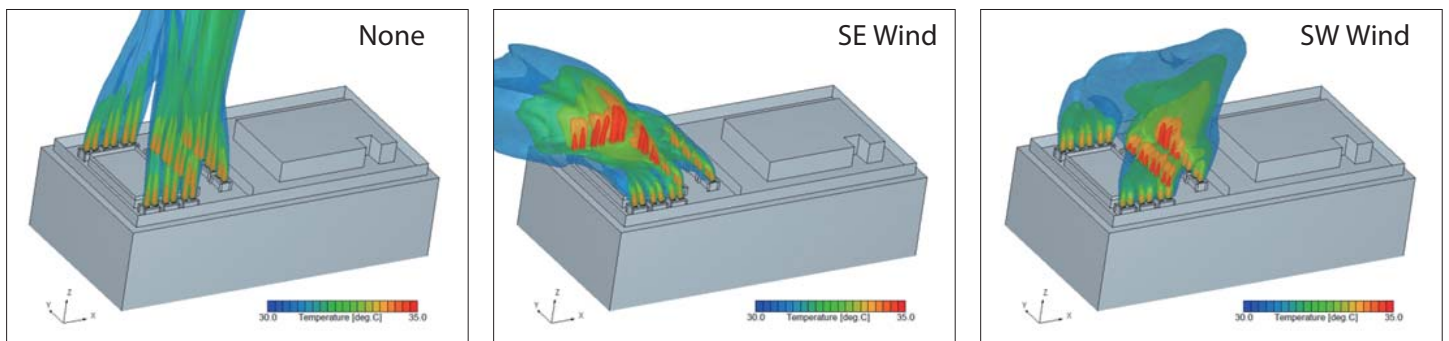
Heater exhaust equipment

14 pieces of equipment on the rooftop

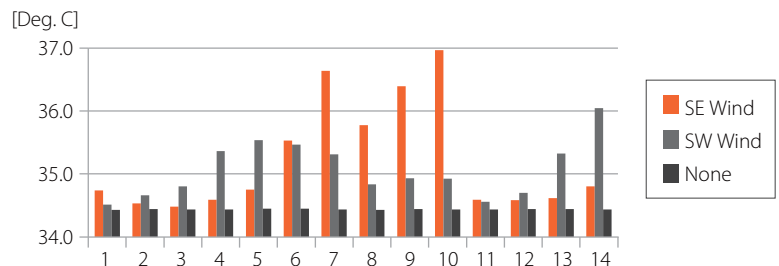
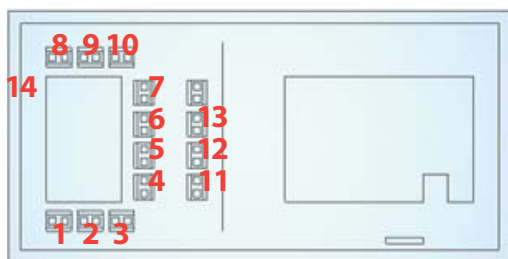
Flow rate	320[m ³ /min] each
Inflow	From two sides
Outflow	From two fans upward
Heating capacity	28,000[W] each

Results

Temperature isosurface plots



Exhaust temperature of each piece of equipment



Notes

Using scSTREAM, the effect of wind on the operation of air-conditioner exhaust equipment is simulated. It is shown that the exhaust air temperature becomes higher for the equipment downstream of some other equipment, which means the operation is less efficient.