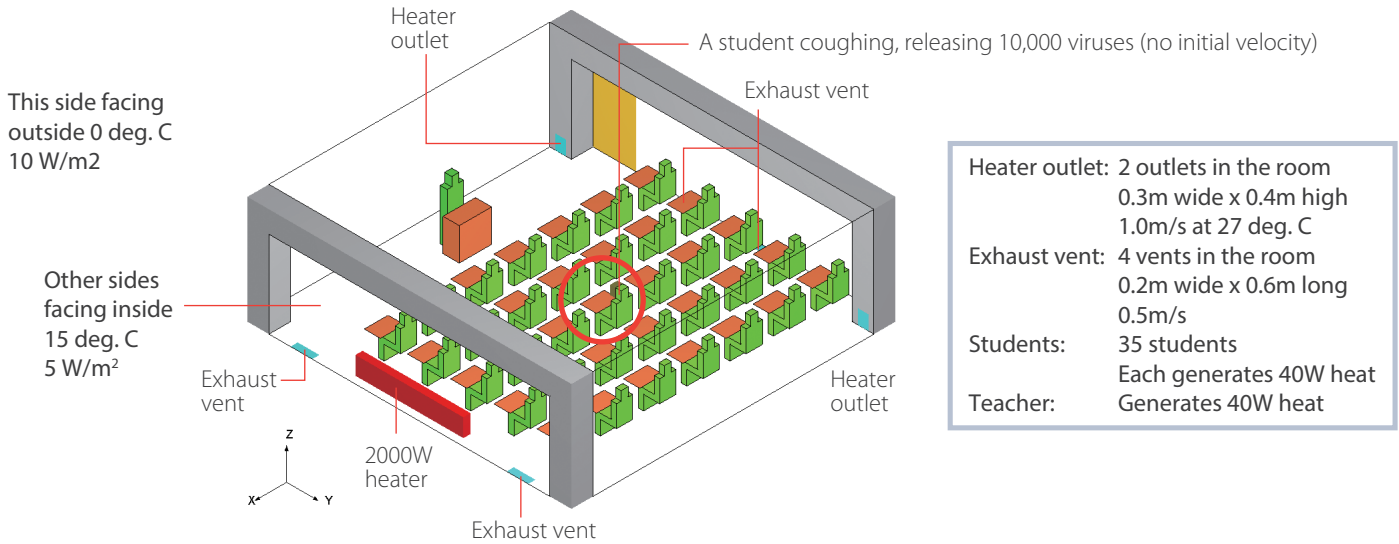


Spread of Virus in a Classroom

scSTREAM is used to simulate the spread of a virus in a classroom environment. Assuming a cold winter day, the flu viruses are modeled and calculated as diffusion species transported by the air flow.

Simulation Model



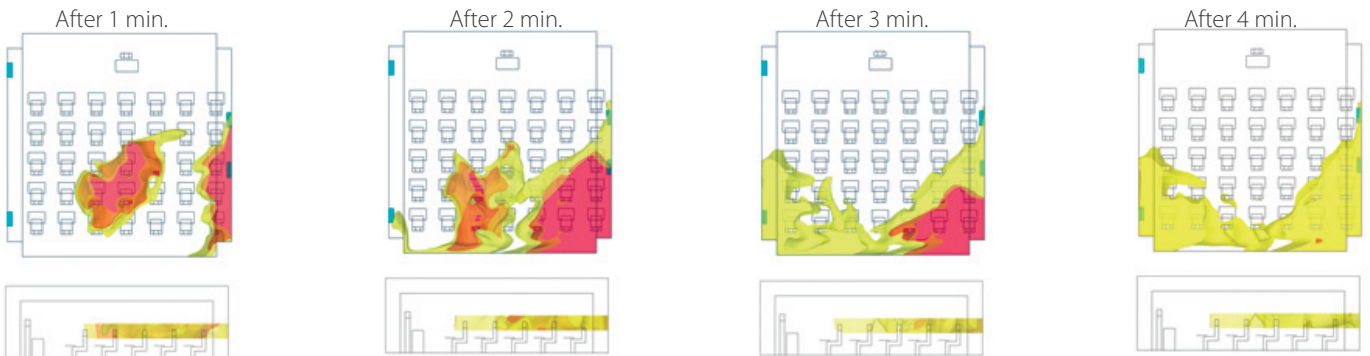
Calculation Setup

Air flow is calculated using a steady-state simulation with buoyancy. Then, using the resultant steady-state flow field, the diffusion of the virus is calculated using transient simulation.

Results

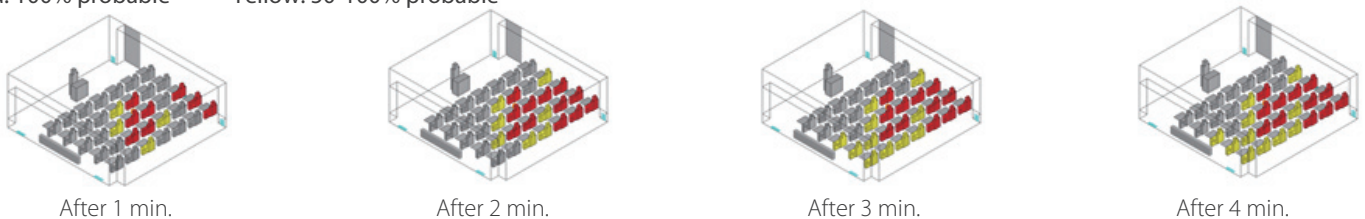
Virus distribution at around head height (between 0.9m and 1.5m)

Red: Concentration > 1 Yellow: Concentration > 0.5



Students exposed to viruses

Red: 100% probable Yellow: 50-100% probable



Notes

Using scSTREAM to simulate classroom air flow and virus diffusion shows that more than half of the students in the classroom will be exposed to viruses from a student seated in the middle of the room. Students who do not feel well should be strongly encouraged to stay home until they feel better.