Study on the venting perfomances for the indoor fire test facility

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Korea Gas Safety Corporation (the headquarter in Chungcheongbuk-do, Korea) is constructing a new test & research center in Yeongwol-gun, Korea. After the completion, it will provide the relate industries with spaces for doing substantiative tests in eneryg safety fields including fire & explosion. The works shown here is to examine if the ventilation system that will be installed in the indoor fire test facility functions as expected before the facility is in actual service. To this end, the non-isothermal computational fluid dynamics simulation in the presence of combustion has been conducted using FDS code. The vent system includes the make-up air holes at the bottom and the hood at the top, and the proper operation has to result in outdoor-like atmospheric condition (i.e., oxygen concentration, temperature and particulates) inside the facility during a test. Using the simulation, five representative cases are studied to better understand the dynamics underneath the ventilation and to suggest the most appropriate operating condition.