

Title:

NUMERICAL SIMULATION MODELS FOR FIRE TESTS IN THE
HIGASHIYAMA TUNNEL

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ABSTRACT

Eight fire tests were held in the Higashiyama tunnel (3.5km long with longitudinal and transversal ventilation combined). At first, test conditions such as the outline of the tunnel, the methods for data acquisition and the acquired data are explained, Second, the numerical simulation models such as the heat generation rate curve, the smoke generation rate curve, the one-dimensional simulation model and the two-dimensional simulation model are described. Finally, the numerical simulation results are compared with the measured data of the fire tests. One-dimensional simulation model is evaluated by the actual distributions of the air velocity and smoke density in longitudinal direction. Two-dimensional simulation model is evaluated by the actual distributions of the air velocity, temperature and smoke density in both longitudinal and vertical directions. After these studies for the verification of the numerical simulation, the usefulness of the numerical simulations is presented.

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