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Prediction of the Heat Transfer Characteristics of Tunnel Concrete

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Abstract : This study suggests the analysis method to predict the damages of tunnel concrete caused by fires. The result obtained from the analyses of concrete temperatures at a fire in a tunnel using ABAQUS was compared with the test result. After the reliability of the analysis method was verified, the temperatures of a tunnel at a real fire and those of concrete during the fire were estimated to predict fire damages. The temperatures inside the tunnel were estimated by FDS, a CFD model. It was deduced that the fire performance of tunnel lining and the fire damages of the structure at an actual fire could be estimated by the analysis method.

Keywords : fire resistance, heat transfer, numerical analysis, tunnel fire
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