

# **An Approach for Evaluating the Residual Strength of Fire-Exposed RC Beams**

## **Abstract**

This paper presents an approach for evaluating the residual strength of fire-exposed reinforced (RC) concrete beams. Data from post-fire residual strength tests on three RC beams are presented. Two of the beams were made of high-strength concrete and the third beam was of normal-strength concrete. Results from the tests indicate that RC beams retain most of their room-temperature flexural capacity after exposure to fire. Data from fire tests and numerical studies are utilised to develop a simplified approach for evaluating the post-fire residual strength of RC beams. The validity of the approach is established by comparing residual strength predictions with measured values obtained from the tests. The paper shows that the proposed approach is capable of predicting the residual strength of fire-exposed RC beams with sufficient accuracy for practical applications.