

## Bond Behavior of Galvanized Steel and Concrete at Elevated Temperatures

**Authors :** Ira Banoth, Anil Agarwal

**Abstract :** In this study, bond behavior between galvanized steel and concrete at elevated temperatures was studied in the temperature range of 20-500 o C. A 12 mm diameter of galvanized rebar is used for the bond test. A heating rate of 2 o C/min is used for heating the specimen until the desired interface temperature is reached. The beam test is conducted to represent the bond behavior of flexural members in reinforced concrete structures. The heating protocol is the high-temperature test. The high-temperature test is the test where the specimen is heated by following a heating rate of 2 o C/min until the desired temperature reaches the steel-concrete interface, and then the mechanical load is applied until the specimen fails. The specimen will fail within 2 minutes of load application, so the temperature variation will not be very much at the steel-concrete interface. The bond strength will be decreased with the increase in temperatures. The absolute values of bond strength vary from 14.7 to 9.5 MPa in the temperature range of 20 to 500 o C. The reduction of bond strength varies from 100 % to 64.6 % in the temperatures range of 100-500 o C.

**Keywords :** galvanized steel, concrete, elevated temperatures, beam test, heating rate, bond strength

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