

Effect of Confinement on Flexural Tensile Strength of Concrete

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Abstract : The flexural tensile strength of concrete is an important parameter for determining cracking behavior of concrete structure and to compute deflection under flexure. Many factors have been shown to influence the flexural tensile strength, particularly the level of concrete strength, size of member, age of concrete and confinement to flexure member etc. Empirical equations have been suggested to relate the flexural tensile strength and compressive strength. Limited literature is available for relationship between flexural tensile strength and compressive strength giving consideration to the factors affecting the flexural tensile strength specially the concrete confinement factor. The concrete member such as slabs, beams and columns critical locations are under confinement effects. The paper presents the experimental study to predict the flexural tensile strength and compressive strength empirical relations using statistical procedures considering the effect of confinement and age of concrete for wide range of concrete strength (from 35 to about 100 MPa). It is concluded from study that due consideration of confinement should be given in deriving the flexural tensile strength and compressive strength proportionality equations.

Keywords : compressive strength, flexural tensile strength, modulus of rupture, statistical procedures, concrete confinement

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