عنوان مقاله:

Axial Compressive Strength of Metal Sheet Confined Concrete Cylinders Based on Various Concrete Strengths

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خلاصه مقاله:

This paper investigated effect of concrete strength on axial strength improvement of the metal sheet confined concrete cylinders under axial compression. Totally, ۲۷ concrete specimens were tested based on three different concrete strengths of approximately ۱۳, ۳۲ and ۳۹ MPa. Epoxy was used as a bonding material along interface between concrete and metal sheet. Based on three different concrete strengths, different level of confinement was established by taking one layer and three layers of metal sheet confinement. The experimental results revealed that axial compressive strength of concrete cylinders could be improved by mean of metal sheet wrapping. It was shown that effectiveness of axial strength improvement of metal sheet confined concrete cylinders depended on original unconfined compressive strength of the core concrete. With lower concrete strength, it was found that use of metal sheet confinement could increase the original strength of the columns more effectively than the case of higher concrete strength. Based on existing results, it was observed that strength improvement prediction given by Richart et al. (۱۹۲۸) could be adopted conservatively with exception of very low concrete strength.

کلمات کلیدی:

Concrete Strength; Metal Sheet; Axial Compression; Confinement; Strengthening