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Strength Comparison between ECC (Engineered Cementitious Composite) & RCC (Reinforced Cement Concrete).

The durability of concrete one of the most significant problems within the civil engineering community. Through careful design and the durability and long term performance of many concrete structures enhance by the use of Engineered Cementitious Composite (ECC) also known as High Performance Fiber Reinforced Cementitious Composite (HP-FRCC) or Benable Concrete. However, before implementing these new materials into construction applications, their durability performance must be shown equal or superior to concrete over long duration in harsh service environments. Reinforced concrete is widely used for construction on a large scale due to its desirable mechanical properties. Concrete has relatively low tensile strength and ductility, the tensile strength and durability are to be increased by the inclusion of reinforcement. This research shows guideline on how Engineered Cement Concrete used in construction works as a replacement of reinforced cement concrete (RCC). The result shows that at 7th day of curing, the compressive strength of ECC cylinder found to be 15.12% higher as compared to the strength of RCC. Similarly, the split tensile strength of ECC specimen is comparatively lesser than RCC to about 27.03%. Moreover, the flexural strength of ECC beam found to be relatively higher than RCC beam to about 2.75%. Whereas, compressive strength at 14th day of curing of RCC specimen is 13.87 % higher than the ECC, the split tensile strength of RCC cylinder is 14.83% higher compared with the ECC cylinder, and flexural strength of ECC beam is higher than the RCC beam to about 4.52%. Similarly, the strength at 28th day of curing at ECC cylinder is 9.22% greater compared with RCC. The strength of RCC in tension is 52.74% higher than ECC. And the flexural strength of ECC beam is more than 63.22% of RCC beam. This research particularly focuses on the strength comparison of ECC and RCC. Although further research is required in this field to understand the effects of ECC in future.

Author: Mr SHAHID, Zubair (Swedish College of Engineering & Technology, Wah Cantt)

Co-authors: Dr BHATTI, Sharif (Swedish College of Engineering & Technology); Mr RASHEED, Yasir (Swedish College of Engineering & Technology)

Presenter: Mr SHAHID, Zubair (Swedish College of Engineering & Technology, Wah Cantt)

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