



## Durability and Performance of Ferrocement Infill Wall Panel

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### Abstract

Ferrocement is composed of cement mortar reinforced with small diameter closely spaced steel wire mesh to form a thin section conforming high performance of serviceability. The present study investigates the performance of ferrocement panels focused on the mechanical properties, water absorption and durability. A series of specimens were cast with single and double mesh layers. Flexural performance was carried out following sixty days in temperature cycle and in corrosion cell. These results was compared with the controlled sample. The test results shows that the flexural strength performance was reduced by 52% and 35% for single and double layer wire mesh samples respectively followed by corrosion environment. First crack load also changed after completion of sixty temperature cycles. This load is 27.3%, 42.3% and 31.8% of failure load for controlled sample, sample in room air after every temperature cycle and samples in room air following quenching after every temperature cycle respectively for single mesh layer sample, and for double mesh layer sample these values are 38.9%, 30.1% and 17.7%. Early first crack is found for the samples following quenching and cooled in room air; however, both types of samples are in low absorption level. This data represents that double layer mesh specimen exhibits better when compared to single layer mesh specimen in strength and corrosion parameters.

**Keywords:** Ferrocement; Flexural Strength; Corrosion; Wire Mesh; Temperature.

## 1. Introduction

The awareness of the durability of the construction elements has emerged as well accepted and preferred option in the field of construction. This might be accomplished by using different approaches to developed cement based composites for structural applications in construction industry. Ferrocement is one of the emerging elements now a day. The definition of ferrocement has been changing in recent time from its early history. Ferrocement materials are like to a reinforced concrete thin element having cement mortar and small diameter of woven wire mesh. Numerous research works argued that the engineering properties of ferrocement structural elements are comparable to the concrete, though in some applications, its performance is improved. Ferrocement which is like a brittle cementitious materials is transformed in to an elastic composite material due to the homogeneously and closely-spaced thin wire mesh in it. This transfer the ferrocement into highly flexible construction materials compared to reinforced concrete in its durability including thermal and acoustic performance. These were concluded from the experimental work completed by Naaman [1], Batson [2], Silva et al. [3], Yardim and Lalaj [4], Yardim et al. [5], Greepala and Nimityongskul [6] and Lilia [7].

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