STRUCTURAL PERFORMANCE OF WIRE MESH REINFORCED CONCRETE WALL PANEL

By

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DECLARATION

I **Sezleen Bahzme Kamarul Zaman, 2004216823** confirm that the work is my own and that appropriate credit has been given where reference has been made to the work of others.

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ABSTRACT

Wire mesh reinforced concrete wall panel is the new method currently used to replace the conventional wall. It is currently used in the construction of high rise building in Klang Valley, Malaysia. The formwork used for the construction of the wall is by using tunnel form system. It is fast and cost effective compared to the conventional method.

This is an experimental work involving three wall panel reinforced with double layer of wire mesh type B385 (B7) with a dimension of 75x1000x1500 mm (Width:Length:Height). The aspect ratio (h/L) and slenderness ratio (h/t) of the wall panel are 1.5 and 20 respectively. The wall panels were constructed using concrete Grade 30 Normal Ordinary Portland Cement (OPC) with a water cement ratio of 0.58.

These wall panel are tested under direct axial line load (without eccentricity) to monitored the structural performance of the wall. Experimental result shows that all wall panels failed in compression shear based on the cracking propagation of the entire wall. The wall panel split into two sections at the middle width of the wall panel. It was found that all the crack lines occur at the side of the wall panel. There are no cracks which occurred at both front and rear surfaces of the wall panel.

Maximum deflection recorded at ultimate load was located at the top of the wall. The wall panels swayed to the front of the wall panel. The reinforcement strain was measured by two vertical strain gauges and two horizontal strain gauges. It was found that as the crack progresses the strain experienced by the longitudinal bars at both sides also increased in both wall panels. However, there are no major changes in the strain measurement by the cross bars for both wall panels.

The structural performances of the reinforced concrete wall panel have been observed and understood. It had provided useful information to design wall panel when reinforced with wire fabric. Since there is no proper standard and design procedure, this understanding could provide sustainable development in promoting fast and economical construction. Thus for future study, it is recommended that the experimental procedure and method of study being varied to gain a better understanding of the structural performance of the reinforced concrete wall panels.

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