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CSIRO

Our reference: NR2003/0049

Mr Paul Blazevic
PanelForm
PO Box 640 Paradise Point
Queensland 4216

Dear Mr Blazevic,

A Brief Report on Performance Assessment of PanelForm Formwork System
Job number FU86BTS3320

The Structural Engineering Group of CMIT was approached in early 2003 by PanelForm Pty Ltd with a conceptual building system in the form of an integrated permanent formwork. As this system had not progressed past the concept stage, validation of the concept to serve as an effective permanent formwork system was needed. CSIRO proposed an investigation to this effect that would assess the performance of the PanelForm system for its intended purpose.

The PanelForm system is described as a permanent formwork system in that it provides the necessary structure to support wet concrete. Once the concrete has cured, the system permanently remains in place, integrated with the concrete and its reinforcement, to provide an exterior surface to receive the desired finish or may already contain an aesthetic finish included during manufacture.

The investigation and testing were designed to examine the following areas of the PanelForm system:

a. The load capacity of the webs retaining the vertical reinforcement;
b. The flow characteristics of the concrete inside the panel system;
c. The bond characteristics between the Flame Retardant HIPS webs and concrete;
d. Bracing system to support erected system;
e. Effects of using common concrete vibration methods;

f. Surface planeness;
g. Compressive strength of specimens taken from the system; and
h. Flexural strength;

A comparative study was performed on concrete panels built with PanelForm and conventional formwork. All the specimens were concreted at the same time with 25 Grade ready mixed concrete. Because of the honey-combed structure of the PanelForm, "block-fill" type concrete was chosen with the slump of 90mm. Both PanelForm and conventional panels were poker-vibrated using a 25mm poker. All stages of concreting were performed by tradesmen.

Concreting of 2.4m Square PanelForm with Minimum External Supports

Investigation revealed that the concept of PanelForm can be effectively used as a potential self-supporting formwork for concreting. It may be able to significantly reduce the cost of conventional formwork which requires external supports. It could give the user an advantage in time and cost.

Because of the honey-combed structure of the PanelForm formwork, concrete with a higher slump similar to block-fill should be used and vibrated properly. The compressive strength of 125mm thick PanelForm concrete was found to be as good as conventional concrete.

PanelForm concept appears to be a simple, yet an effective revolutionary formwork system.

A Detail report of this investigation is found in CSIRO report DTS734 which was exclusively submitted to PanelForm.

Yours faithfully,

Dr Sam Samarasinghe

Project Leader. Structural Engineering
For Chief, BCE
(5 October 2004)