

Surawit Jongyingsiri 2006: Behavior of Built-up Precast Concrete Slab Reinforced by External Bars in Parabola Curve. Master of Engineering (Civil Engineering), Major Field: Civil Engineering, Department of Civil Engineering. Thesis Advisor: Associate Professor Trakool Aramraks, Ph.D. 116 pages.

Plank and hollow core slab, the pre-cast slab which is available in the market and is used for the construction, are the built-up sections which apply the prestressed concrete system that needs high compressive strength of concrete and also needs high tensile strength of p.c. wires as well as the special equipment to achieve those built-up sections. It is interesting to study and investigate the built-up section which is composed of the conventional compressive strength of concrete and yield strength of rebars, and is able to be fabricated anywhere without special equipment which is expected for high service capacity. Therefore this thesis aims to study and investigate the behavior and the ultimate load capacity of the built-up non prestressed pre-cast concrete slab reinforced by external rebars in parabola curve subjected by uniform load. The tests were conducted on three different parabola profiles of 3 RB9 rebars external reinforced to concrete slab. Three testing samples for each profile of rebars are investigated for their ultimate load capacity and their deflection. The test results were compared with the theoretical results by finite element method and simplified analysis.

The test results show that the ultimate loading capacity of the built-up section with 0.30 m. width of slab, 3 m. span length and 0.20 m of the lowest sag point of parabola rebars at mid span is approximately up to 3,500 kg/m². Nevertheless, its capacity depends on span length, area and tensile strength of rebars and size of slab which have to be considered simultaneously.

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