

Special Research Studies Title	The Study for Cost Estimation in Reinforcing of Bridge with Carbon Fiber due to Overtruck Loading
Special Research Studies Credits	6
Candidate	Mr. Kittipochana Srichandra
Supervisors	Dr. Pasit Lorterapong Asst. Prof. Anek Siripanichagorn
Degree of Study	Master of Engineering
Department	Civil Engineering
Academic Year	2001

Abstract

The aim of this research was to study and estimate the cost for reinforcing 10 m. slab type bridge due to overtruck loading. The further objective was also focused on the additional cost of renewal of an existed bridge in order to compare with the cost of the new construction of bridge. The study began with the analysis of moments caused by overtruck loadings beyond the 21-ton, Thai ten-wheel truck, ie. 23,25,28,30,33 and 35 tons. The moments of 21-ton truck-loading and 23-ton one were less than the standard truck, HS20-44 given by AASHTO. The increasing of moments from 25-tons and over were reinforced by using carbon fiber. The cost of reinforcing due to additional moments was taken as the basic cost. The additionally adjustable cost for renovating of existed bridge should be investigated by service life of bridge, traffic volume and the record of previous maintenance fund

The result revealed that the basic cost of bridge reinforcing trended to be higher as the increasing of truck loading. It was the reason that the various costs were depend on the effect of the factors above. Comparing to the new construction of bridge, the truck loading of 33 and 35 tons enhanced the new ones.

Keywords : Additional Loads / Carbon Fiber Bridge Strengthening / Basic Strengthening
Cost / Adjustment Cost / Cost Adjustment Index