REVIEWS OF CURRENT PUBLICATIONS

Strength of Pretensioned Box Girders

Graham W. Taylor and
Joseph Warwaruk

An analytical computer model is developed to analyze prestressed concrete box girders subjected to torque, bending movement, and shear. Its performance is evaluated in comparison with results of experimentation and current theory. Emphasis is placed on the prediction of post-cracking member deformations in addition to ultimate member strength. The analytical flexibility of the coputer model is illustrated in contrast to the restrictive assumptions encountered in current theory. Being afflicted by only one serious shortcoming (which involves the variation of magnitude of the shear stress from the outside to the inside edge and which is not significant in box girders of common cross-sectional geometry), the computer model is a flexible, comprehensive mode of analysis whose range of application is limited by few constraints.

Journal of the Structural Division, ASCE, V. 107, No. ST5, May, 1981, pp. 775-788.

Long-Span Bridges: State-of-the-Art

Fu-Kuei Chang and Edward Cohen

Much progress has been made in recent years in the art of long-span bridge design and construction. Modern long-span bridges tend to have a more graceful appearance, a breakaway from the traditional shapes, and an economical, light structure resulting in savings in material and labor. In the future, the possible introduction of new materials, the improvement in fabrication and erection techniques (as well as in analytical theories and methods), and the development of new forms of bridges may not only make it possible to increase the maximum span lengths further, but also to produce more economical, more graceful, and almost maintenance-free structures. Also included are lists of all major long-span bridges according to bridge types, giving the span lengths, years of completion, special features, and other information.

Journal of the Structural Division, ASCE, V. 107, No. ST7, July 1981, pp. 1145-1160.

Combined Bending, Torsion, and Shear of Prestressed Concrete Box Girders

G. Taylor and J. Warwaruk

Seven double-celled prestressed concrete box beams, five rectangular and two trapezoidal in cross section, were tested under varying load combinations of torque, bending moment, and shear. The comparison of experimental results with theoretical interactive behavior illustrated reasonably close agreement.

ACI Journal, Proceedings, V. 78, No. 5, September-October 1981, pp. 335-340.

Construction Cost Estimating for Project Control

James M. Neil

While the author concentrates on cost estimating, he gives considerable coverage to the contracting function, organization for construction, the total cost engineering process for construction, and methods of construction. Mr. Neil writes for both design and construction engineers and targets the following objectives: 1. To identify and examine the many components of construction cost and their variability. 2. To present a system for estimate development for major construction. 3. To emphasize that cost estimation is not an isolated function whose end is the preparation of a bid. Estimating must support and facilitate the entire project.

Prentice-Hall, Englewood-Cliffs, New Jersey, 07632, 331 pp., contact publisher for prices.