REVIEWS OF TECHNICAL PUBLICATIONS

Minimizing Floor Vibration

This document is the first in the new Design Guide series developed by the Applied Technology Council Board of Directors. The series presents succinct, state-of-the-art information on important design issues for practicing structural engineers. The document was developed with funding from the Henry J. Degenkolb Memorial Endowment Fund of the Applied Technology Council (ATC).

This first ATC Design Guide provides guidance on design and retrofit of floor structures to limit transient vibrations to acceptable levels, recognizing that "acceptable levels" is a somewhat subjective measure. The document also includes guidance for estimating floor vibration properties and example calculations for a variety of floor types and design conditions.

The criteria provided in this guide for acceptable levels of floor vibration are based on human sensitivity to floor vibration, whether it is caused by human behavior or machinery in the structure. Other sources of floor vibration such as vehicular traffic, internal or external to the building, are not covered in this document. The criteria apply to floors made from most currently used construction materials.

The following chapters are included: (1) Introduction; (2) Design; (3) Retrofit; (4) Estimation of floor vibration properties; and (5) Examples. An Appendix section includes information on how to determine floor panel stiffness.

ATC Design Guide 1, Applied Technology Council, Redwood City, CA 94065, 1999, 64 pp.

Self-Compacting Concrete

H. Okamura, K. Ozawa, and M. Ouchi

Self-compacting concrete was first developed in 1988 in order to achieve durable concrete structures. Since then, various investigations have been carried out, and the concrete has been used in practical structures in Japan, mainly by large construction companies. Investigations for establishing a rational mix design method and self-compactability testing methods have been carried out from the viewpoint of making it a standard concrete. In addition to Japan, investigations have been started in many countries, and it has been applied to practical structures especially in Canada, Sweden, The Netherlands, Thailand and Taiwan. Recommendations and manuals for self-compacting concrete have also been published in Japan. In this article, the current condition of self-compacting concrete is summarized based on reports given at the International Workshop on Self-Compacting Concrete, Kochi, Japan, in 1998.

Structural Concrete, V. 1, No. 1, March 2000, pp. 3-17. Journal of the fib (Fédération Internationale du Béton), Lausanne, Switzerland.

Prestressed Concrete Application in Bridges in the Hong Kong Airport: Core Programme Projects

C. K. Lau, C. H. Hui, K. Y. Wong, Y., and W. Leung

This paper describes the application of prestressed concrete technology to bridges in the Hong Kong Airport Core Programme projects, including the use of internal and external prestressing techniques, integration of precast and *in situ* construction, the incremental launching construction method, and segmental construction using balanced cantilever and span-by-span methods. Each of the bridge structures uses a unique prestressed concrete technique, and the advantages of using a particular technique are highlighted in the text. These bridges serve as good examples to demonstrate that prestressed concrete techniques can cope extremely well with different and difficult requirements and meet very challenging demands.

Structural Concrete, V. 1, No. !, March 2000, pp. 27-45. Journal of the fib (Fédération Internationale du Béton), Lausanne, Switzerland.

An Experimental Study on Multi-Story Precast Concrete Shear Walls with Horizontal Joints Restrained from Slipping

Toshio Matsumoto and Hiroshi Nishihara

Based on an experimental program on three test specimens representing the lower three stories of a multistory precast shear wall, it is shown that shear strengths similar to or higher than that of a corresponding monolithic specimen were obtained with the precast system. Two methods are proposed for restraining the slip displacement of the horizontal joints.

Transactions of the Japan Concrete Institute, V. 21, 1999, pp. 335-342.

Flexural Behavior of Reinforced Concrete Members Strengthened with Longitudinal Prestressed Concrete Jacketing

Takashi Yamamoto, Takuya Imai, Atsushi Hattori, and Toyoaki Miyagawa

In the seismic strengthening techniques that uses reinforced concrete jacketing, the application of longitudinal prestressing for jacketing concrete has been shown to be effective in increasing the strength of the member. In this test program, the influence of longitudinal prestressing and the mechanical properties of the tendons on the flexural behavior of the strengthened member are examined under load reversals. It is shown that the characteristics of the tendons have a major effect on the strength and behavior of the member.

Transactions of the Japan Concrete Institute, V. 21, 1999, pp. 351-356.