

REFERENCE CARDS

KEYWORDS: accelerators; compressive strength; curing; curing methods; high early strength; hot concrete; insulated molds; low-temperature curing; plants; precast concrete; precast products; research; steam curing.

ABSTRACT: Traditionally, low pressure steam has been used to cure plant produced precast prestressed concrete products. Nevertheless, there are some inherent disadvantages associated with this curing method. In this article the author proposes a new curing method for precast products using a low temperature. The method has been applied in New Zealand and preliminary results show that substantial savings in plant operations can be attained without any appreciable loss in concrete strength.

REFERENCE: Whittaker, John B., "Low Temperature Curing of Precast Prestressed Concrete Products," PCI JOURNAL, V. 22, No. 4, July-August 1977, pp. 40-49.

KEYWORDS: building codes; columns; design (structural); flanged sections; load-bearing walls; load-moment relation; mathematical model; model; moment-curvature relation; precast concrete; prestressed columns; prestressed concrete; research; slenderness; tests; walls.

ABSTRACT: A T-shaped prestressed concrete column was designed to behave in an unstable condition with the object of testing a mathematical model previously used for making design recommendations. Tests of five specimens are reported.

Design recommendations are suggested for modifying certain provisions of the ACI Code in regard to prestressed flanged sections.

Although the observed moment-curvature relation did not agree well with the computed values, the overall column behavior was predicted accurately. The model is felt to be validated.

REFERENCE: Alcock, W. J., and Nathan, N. D., "Moment Magnification Tests of Prestressed Concrete Columns," PCI JOURNAL, V. 22, No. 4, July-August 1977, pp. 50-61.

KEYWORDS: box girder bridges; bridges; bridge decks; construction; decks; post-tensioning; precast concrete; prestressed concrete; repair; segmental bridges.

ABSTRACT: The author, whose firm has designed many types of box girder bridges, proposes a method for reconstructing the decks of precast prestressed segmental bridges in the event such repair is needed in the future.

The construction procedure, the advantages of the method and an example from a current bridge project are given.

REFERENCE: Bender, Brice, "Provisions for Possible Reconstruction of Decks on Segmental Box Girder Bridges," PCI JOURNAL, V. 22, No. 4, July-August 1977, pp. 80-84.

KEYWORDS: analysis; architectural precast concrete; building materials; cost; curing; design; economics; manufacture; materials; panels; plants; polymer-impregnated concrete; precast concrete; wall panels.

ABSTRACT: Presents an in-depth economic feasibility study of using polymer-impregnated concrete (PIC) as a building material in the precast concrete industry. A precasting plant is designed for steady production and a comparative analysis is made of the incremental cost of PIC over the cost of conventional concrete with particular reference to panel production.

REFERENCE: Frondistou-Yannas, S. A., and Dietz, G. L., "Economic Feasibility of Polymer-Impregnated Concrete as a Building Material," *PCI JOURNAL*, V. 22, No. 4, July-August 1977, pp. 62-79.

KEYWORDS: architectural precast concrete; connections; construction; design (structural); erection; facade; garages; parking structures; precast concrete; prefabrication; prestressed concrete; sandblasting; Vierendeel trusses.

ABSTRACT: A major feature of an all-precast parking structure for the city of Rock Island, Illinois, is the use of precast prestressed concrete Vierendeel trusses.

This article describes the planning and design considerations in the prefabrication and prestressing of the trusses and briefly discusses some special structural considerations that are important in the design of parking structures.

REFERENCE: Shah, Pradeep H., and May, Howard R., "Precast Vierendeel Trusses Provide Unique Structural Facade for Parking Structure," *PCI JOURNAL*, V. 22, No. 4, July-August 1977, pp. 24-39.

DISCUSSION

The Editors welcome discussions of papers published in the *PCI JOURNAL*. The comments must be confined to the scope of the paper under discussion. Please note that discussion of papers appearing in this current issue must be received at PCI Headquarters by January 1, 1978.