

REFERENCE CARDS

KEYWORDS: FIP Congress (1978); historical developments; proceedings; review.

ABSTRACT: Presents the highlights of Federation Internationale de la Précontrainte's Silver Jubilee, Eighth Congress, held in London, England, April 30-May 5, 1978. Reviews the awards and honors conferred on individuals for various contributions to prestressed concrete and lists the proceedings, volumes and English language technical papers presented at the Congress. Included, is an outline of world historical contributions of structures and developments in prestressed concrete.

REFERENCE: Jenny, Daniel P., "Highlights of Eighth FIP Congress (London)," *PCI JOURNAL*, V. 23, No. 3, May-June 1978. pp. 12-20.

KEYWORDS: bridges; construction; design (structural); education; full scale testing; history; Magnel, Gustave; North America; precast concrete; prestressed concrete; review; Walnut Lane Bridge.

ABSTRACT: This is the first paper of a series of articles retracing the historical events and developments of prestressed concrete in North America written by pioneers of the industry. Discusses the influence of the Belgian-American educational exchange which benefited both countries. Emphasizes the significant role that Prof. Gustave Magnel played in introducing prestressed concrete to North America. Traces the steps, decisions, incidents and relations leading to and culminating in the construction of Philadelphia's Walnut Lane Bridge in 1950. Discusses the contractual agreement for the bridge's construction including full-scale testing to destruction of a main-span beam.

REFERENCE: Zollman, Charles C., "Reflections on the Beginnings of Prestressed Concrete in America—Part 1: Magnel's Impact on the Advent of Prestressed Concrete," *PCI JOURNAL*, V. 23, No. 3, May-June, 1978, pp. 21-48.

KEYWORDS: construction; design (structural); post-tensioning; precast concrete; prestressed concrete; quadrant sections; segmental construction; tower; wall panels.

ABSTRACT: Describes the design considerations and erection procedures involved in building the Air Traffic Control Tower for the Anchorage International Airport in Anchorage, Alaska. The overall height of the tower above ground is 169 ft. The first 127 ft was comprised of precast concrete wall panels and quadrant sections which were post-tensioned together.

REFERENCE: "Precast Prestressed Segmentally Constructed Air Traffic Control Tower," *PCI JOURNAL*, V. 23, No. 3, May-June 1978, pp. 82-89.

KEYWORDS: connections; continuity; continuous slabs; deflections; full-scale tests; hollow-core slabs; moments; multispan system; precast concrete; prestressed concrete; research.

ABSTRACT: The objective of this study was to find an efficient continuous connection for a multispan system of precast prestressed hollow-core slabs without a concrete topping.

Comparative load tests were carried out using a simply supported slab and a two-span continuous slab. Strain measurements were taken of the concrete and the reinforcing steel. Deflection readings were also recorded.

Continuity was obtained by casting in place the inner support slab zone and filling its voids in the negative moment zone with reinforcing bars. The effectiveness of the connection depended upon the strength of the cross section over the inner support. Note that concrete of the same type as the precast slab was used for the connection rather than grout.

A major advantage of continuity is that the moments will be distributed resulting in smaller positive moment, less deflection, and a smaller possibility for cracking. Moreover, the provision of horizontal ties in the floor structure will improve the general structural integrity of the building.

REFERENCE: Rosenthal, I., "Full Scale Test of Continuous Prestressed Hollow-Core Slab," PCI JOURNAL, V. 23, No. 3, May-June 1978, pp. 74-81.

KEYWORDS: analysis; beams; cracking; prestressed concrete; prestressing; reinforcement; research; theoretical predictions; torsion; torsional response.

ABSTRACT: Based on experimental observations and theoretical predictions, the authors describe the influence of prestressing on the torsional response of concrete beams. A series of six beams were tested all with the same amount of hoop reinforcement but with varying amount of longitudinal steel. The theoretical predictions of the compression field theory are compared with Zia and McGee's design equations and with the experimental results.

REFERENCE: Mitchell, Denis, and Collins, Michael P., "Influence of Prestressing on Torsional Response of Concrete Beams," PCI JOURNAL, V. 23, No. 3, May-June 1978, pp. 54-73.

KEYWORDS: bridge; epoxy; I girders; precast concrete; prestressed concrete; segmental construction; splices.

ABSTRACT: The Cockshutt Road Bridge near Brantford, Ontario, is a five-span precast prestressed concrete structure. The bridge utilized spliced 'I' girders to achieve an economical solution for spans up to 160 ft. The girders were cast in segments and were spliced together using an epoxy and were then post-tensioned for continuity.

REFERENCE: "Spliced Precast Girders Provide Solution for Multispan Prestressed Bridge," PCI JOURNAL, V. 23, No. 3, May-June 1978, pp. 51-53.
